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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

NINETY-NINTH CONGRESS

FIRST SESSION

ON

S. 674

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 1986 FOR THE ARMED FORCES FOR PROCUREMENT, FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, FOR OPERATION AND MAINTENANCE, AND FOR WORKING CAPITAL FUNDS, TO PRESCRIBE PERSONNEL STRENGTHS FOR SUCH FISCAL YEAR FOR THE ARMED FORCES, AND FOR OTHER PURPOSES

PART 8
SEA POWER AND FORCE PROJECTION

FEBRUARY 26, 28, MARCH 5, 7, 12, 14, 1985

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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

TUESDAY, FEBRUARY 26, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVAL MARITIME THREAT ASSESSMENT

The subcommittee met in executive session, pursuant to notice, at 2:12 p.m., in room SR-222, Russell Senate Office Building, Senator William S. Cohen (chairman), presiding.

Present: Senators Cohen, Wilson, Nunn and Glenn.

Staff present: Gordon G. Riggle, professional staff member; Arnold L. Punaro, staff director for the minority; John J. Hamre, and Mark B. Robinson; professional staff members Russell C. Miller, research assistant; and Kathleen L. McGuire, staff assistant.

Also present: James M. Bodner, assistant to Senator Cohen; DeForest Hamilton, and Allan Cameron, assistants to Senator Denton; William S. Lind, assistant to Senator Hart; and Phillip P. Upschulte, assistant to Senator Glenn.

OPENING STATEMENT OF SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. The subcommittee will come to order.

I want to welcome Vice Adm. Lee Baggett, Director of Naval Warfare, and Rear Adm. John Butts, Director of Naval Intelligence.

We are pleased to have both of you with us this afternoon.

Admiral Baggett has recently been nominated for his fourth star and assignment as commander-in-chief of Allied Forces, Southern Europe.

I want to congratulate you on your most recent, and I think most prominent, success.

Admiral BAGGETT. Thank you, Mr. Chairman.

Senator COHEN. At the same time, I also want to welcome Senator Glenn, who is a new member on this subcommittee. He is going to be joining Senator Denton, who formerly was with the committee, but left 2 years ago. We welcome him back as well as Senator Gramm, who we expect will be joining us later this afternoon.

This afternoon's hearing is the first in a series of six which are going to be held by the Sea Power and Force Projection Subcommittee. The hearings this week are intended to provide a backdrop against which to consider the sea power portion of the fiscal year 1986 defense budget.

Specifically, this afternoon we are going to receive testimony on maritime threats to our national interests around the world.

It has been 2 years since the subcommittee received such a maritime threat briefing, and a great deal has happened to us since that time—to our Navy, certainly, and to both our allies and potential antagonists. I will pass over New Zealand for the time being, but will talk about that a little bit later.

Certainly the Soviets have continued to expand and enhance their naval capabilities. At the same time, Third World and regional navies, many of whom are no friends of the United States, have continued to acquire highly capable naval weapon systems of every sort.

Consequently, even absent Soviet forces, our Navy may be facing an increasingly formidable threat during crisis response operations. This seems to me to be an important trend with significant implications. So I have asked our witnesses to address it during our hearing today.

Senator Nunn is not here yet but I understand he is on his way. We will recognize him when he arrives for any opening statement he might care to make.

John, do you have a statement for us?

Senator Glenn. I have no statement. I am glad to be here today. I understand the subcommittee is still in a slight state of flux.

Senator Cohen. Thank you.

Admiral Baggett, why don't you begin.

Admiral Baggett. Mr. Chairman, I am going to ask Admiral Butts to present his statement first, if you don't mind.

Senator Cohen. All right, fine.

Admiral Butts, you may proceed.

STATEMENT OF REAR ADM. JOHN L. BUTTS, USN, DIRECTOR, NAVAL INTELLIGENCE

Admiral Butts. Mr. Chairman, thank you very much for the opportunity to appear before this subcommittee again.

With your permission, I would like to introduce my statement for the record and then highlight some recent developments in Soviet and Third World activities that I think will be of principal interest to this subcommittee.

Senator Cohen. Your full statement will be included, Admiral.

Admiral Butts. Thank you, sir.

Missions

Strategic: includes [deleted].
Destruction of Enemy Forces: SSBN's and CVBG's.
Support of Ground Force Operations.
SLOC Interdiction.
Support of State Interests.

I know that the committee was briefed recently on the U.S. maritime strategy and as part of that briefing the most recent Soviet Navy National Intelligence Estimate, NIE 11-15, was highlighted, with these missions for the Soviet Navy. As I talk about the Soviet Navy developments, I think these are good things to keep in mind.

The primary emphasis of the Soviets is on [deleted] their ballistic missile submarine force. Also are their efforts to provide forces of their own, to destroy enemy forces, principally ballistic missile submarines and carrier battle groups; and the ever present, long time, historic Soviet Navy mission of support to their own ground force operations. We see that particularly in enclosed sea areas, like the Baltic. Certainly also a mission of sea lines of communication interdiction, and with the growing numbers of ships and aircraft that the Soviets have, this mission becomes ever more practicable for them to take on while doing other missions concurrently. And certainly support of state interests, what I have described to this subcommittee previously as gunboat diplomacy, Soviet style.

In their strategic missile force at sea, the Soviets early this past year launched a Delta IV class SSBN. The Delta IV we believe is the platform for the new SS-N-X-23 submarine launched ballistic missile, which will be the follow-on to the SS-N-18, now carried on the Delta III's.

The SS-N-X-23 is a longer range missile and may have more multiple targeted independent reentry vehicles than the SS-N-18 missile.

They have also [deleted], the Soviets, a [deleted] this past month. So it looks like about a [deleted] for a while.

The third submarine of the Typhoon class, which carries 20 of the SS-N-20 long range ballistic missiles, was launched in either [deleted] 1983, or [deleted] 1984, and is [deleted] now. Two of these submarines are operational, and [deleted].

This is still the largest submarine in the world at some 27,000 or 28,000 tons submerged displacement, as compared to about 18,000 tons displacement submerged for the Trident, the *Ohio* class.

This submarine, however, carries only 20 missiles, where a Trident carries 24.

The Soviets have more than half of the nuclear powered ballistic-missile submarines in the world. They have 62 modern ballistic-missile submarines, which count under SALT for accountability purposes, and are dismantling the older Yankees, one by one, to stay within those limits.

They have two of the older submarines of the Hotel class, also nuclear powered, which carry ballistic missiles, which do not count toward SALT accountability, and also 15 ballistic missile powered diesel submarines. These are of the Golf class, which they use for patrols in the Baltic.

The total is 79 ballistic missile submarines. The rest of the ballistic-missile submarines of the world are shown here (indicating).

Nuclear powered ballistic-missile submarines in the world

Soviet Union	[deleted]
United States = 32%	36
France	5
United Kingdom	4
China	[deleted]

This is the latest Soviet attack submarine, the Akula. The subcommittee will recall that heretofore we have named Soviet submarines such as Alpha, Bravo, Zulu, Delta, Echo—letters of the alphabet, except for Typhoon, which was [deleted].

Well, we are out of the alphabet. We have no more A through Z's to use, so we have started over. The Supreme Allied Commander, Atlantic, the NATO Command, provides the NATO names and nicknames for Soviet submarines. He has named this submarine Akula, which means "shark" in Russian, and we will continue now with B, C, D, and so forth, as the new classes are introduced.

Akula is a [deleted] and has the same historic, streamlined profile with the [deleted] for [deleted].

This submarine has been built in the Pacific. It is a big submarine, about [deleted] tons. Our *Los Angeles* class is about 6,900 tons submerged displacement.

The Sierra, which has been built [deleted] and which has a [deleted] is among the quietest of the new Soviet submarines, and is [deleted] submarine we have seen. It has a smaller [deleted] than the Alpha, which the Soviets described as [deleted]. The Sierra is even more quiet than that and that gives it some [deleted] systems and also gives it some [deleted].

Sierras are under construction still [deleted] and we think about [deleted] of these submarines will be built by the [deleted].

VICTOR III CLASS SSN

IOC................................1979
DISPLACEMENT (T)...................6,250
LENGTH (M/FT)...................
BEAM (M/FT).................... Deleted
MAX SPEED (KTS)...............
LIMIT/TEST DEPTH (M/FT)..........

ARMAMENT
TORPEDO –
ASW – Deleted
MINES –
SLCM — SS-NX-21 (1 UNIT)

The Victor III is shown here. The Soviets have launched [deleted] of these this past year. It has been the workhorse of the Soviet attack submarine force. Submarines of this class have operated off both the U.S. east and west coasts [deleted] obviously in an [deleted] role and also probably [deleted] [deleted] maybe doing some [deleted].

We expect to see more and more Soviet excursions with their attack submarines into waters where heretofore we have expected not to see them, as more and more of these kinds of submarines are added to the Soviet submarine force.

SOVIET SUBMARINE LAUNCHES

[NUL/DIESEL]

	1983	1984
Typhoon SSBN	1	—
Delta IV SSBN	—	1
Mike SSN	1	—
Sierra SSN	1	—
Victor III SSN	[Deleted]	[Deleted]
Akula SSN	—	1
[Deleted]	[Deleted]	[Deleted]
Kilo SS	[Deleted]	[Deleted]
Foxtrot SS (Export)	1	—
Total	[Deleted]	[Deleted]

This past year, the Soviets launched a total of [deleted] compared to nine in 1983, with two new classes, the Akula and the Delta IV, as I mentioned, and [deleted] of the Victor III's and [deleted] of the Kilo class diesel submarines which the Soviets are building in the Pacific, and which was the first Soviet submarine, indeed, the first submarine in the world, to have a [deleted] area.

Senator COHEN. You did not mention the Mike.

Are you going to talk about that as well?

That came out last year, along with the Sierra, did it not?

Admiral BUTTS. Yes, sir.

I had intended to mention the Mike and a couple of others, just in passing. I will stop and do that right now.

The Mike, which is a [deleted] submarine, like [deleted] and like [deleted] is the largest of the Soviet attack submarines, about 9,700 tons.

It is, to this time one of a kind, but we think the Soviets will build [deleted] of these submarines by the [deleted].

This submarine was built in the same construction hall in the Soviet Northern Fleet where the Soviets built the Alpha. The [deleted] characteristics of it and other characteristics, as I said, suggest that it does have a [deleted].

There is no good answer yet as to why they built an attack submarine this large, unless they wanted to provide for extra storage room for armament, perhaps the SS-NX-21, which is the Soviet version of the Tomahawk, a land-attack cruise missile, which has been under development in the Soviet Northern Fleet, using a specially modified Victor III class submarine as a launch platform, for the past [deleted] years.

I point out, however, that it has been a good while since we have seen any [deleted] and the Soviets I do not believe are quite ready to deploy that missile system, though perhaps later this year.

Senator COHEN. I would point out, John, that this is one our [deleted] as far as the [deleted].

Admiral BUTTS. That is correct, sir. We were [deleted] a submarine, but we were [deleted]. It was a little [deleted] as I told the subcommittee earlier, than what we had really [deleted].

The Soviets have been very good at giving us a [deleted] now and again over the years, some things that we [deleted] in quite the fashion that [deleted] them.

These are the submarines that are under construction right now, the Typhoon class SSBN, the Delta IV, Oscar. There is a new [deleted] submarine [deleted] which we believe will be the launch platform for the [deleted].

The [deleted] is another Soviet cruise missile which [deleted] from the modified Yankee in the Soviet Northern Fleet, to this point a one of a kind platform, that has not done anything else but [deleted] this one class of missile since the submarine was converted.

The Tomahawk—like SS-NX-21, is [deleted] subsonic, long-range. The [deleted] is a [deleted] or better, [deleted] at least and perhaps [deleted]—and [deleted] as compared to the [deleted] for the SS-NX-21.

The Alpha, or the follow-on to the Alpha, the Akula, the Sierra, and the Mike, and the Kilo class, which is diesel powered, round out the Soviet submarine construction program at this point in time.

Nuclear powered submarines in the World	[Deleted]
Soviet [deleted] of total world order of battle	[Deleted]
United States = (36 percent)	131
United Kingdom	[Deleted]
France	[Deleted]
China	[Deleted]

In the aggregate, counting SSN's, SSGN's, and SSBN's, the Soviets own more than half the world's order of battle. The rest of the world ends up as shown on the slide, in terms of submarine forces.

Senator GLENN. Mr. Chairman, that is by numbers of actual ships, or boats, isn't it?

Admiral BUTTS. Yes, sir. That is correct.

Senator GLENN. We still have about [deleted] percent, I believe, of our weaponry at sea. What percentage do the Soviets have, as far as launch capability goes?

Admiral BUTTS. Yes, sir. That's correct. I think about [deleted] percent. I will have to check.

Senator GLENN. I thought it was less than that. I thought it was about a fourth.

Admiral BUTTS. Well, as the SS-N-20 has come on line with the [deleted] MIRV's, there has been some rejuggling of the figures. I would like to get some figures for the record, Senator, if I may.

[The information follows:]

SOVIET NAVY DEPLOYED SLBM WARHEADS

On daily average, about [deleted] Soviet SSBNs were on patrol at sea in 1984. A [deleted] embarked in these submarines is [deleted] because the Soviets have produced several [deleted] within each submarine-launched ballistic missile (SLBM) [deleted] The DELTA III SSBN, for example, could be loaded with SS-N-18 SLBMs [deleted] We estimate, however, that the patrolling submarines represent some [deleted] percent of the Soviet Navy's [deleted] warheads. An additional, similar percentage of their warheads is embarked in SSBNs which are maintained in a [deleted] status in the USSR's home waters. We believe these submarines could be [deleted].

Senator GLENN. Is it your view that they are trying to switch from their ICBM's to sub launched?

Admiral BUTTS. No, sir.

It is my view that the Soviets are trying to build a secure at-sea [deleted] force.

Senator GLENN. The percentage is about the same, then? Land and sea?

Admiral BUTTS. Yes, sir.

We see every indication that the Soviets are continuing the development of their land-based missile systems, roughly in the same phase as their sea-based missile systems.

Senator GLENN. Thank you.

Submarines in the world	[Deleted]
Soviet = [deleted] of total world order of battle	[Deleted]
United States = 14.6 percent	136
China	[Deleted]
North Korea	[Deleted]
United Kingdom	[Deleted]
France	[Deleted]
Germany	[Deleted]
Total	[Deleted]

Admiral BUTTS. If you take all of the submarines in the world, submarines including diesels, nuclear, everything that there is, there are [deleted] and the Soviets own [deleted] of them. To equal the Soviet submarine force you must add up the next six largest submarine forces in the world

Senator NUNN. There is a big gap between the two totals and the [deleted] up there, Admiral. Where do the others come in—from a lot of small countries?

Admiral BUTTS. Yes, sir.

There are many small countries that add in. That is part of the point Senator Cohen made earlier.

For example, Libya has six Foxtrots. Cuba has three Foxtrots. The Soviets have given them to them. India has about six Foxtrots. There are a number of countries around the world, such as South American countries, which have submarines.

If you add all of these numbers up [indicating], plus this number [indicating], then you still are about 200 or so shy. These add up in twos, threes, fours, tens, and twelves around the world.

Senator COHEN. What is the capability of the Chinese submarines?

We [deleted] I believe—but.

Admiral BUTTS. Yes, sir—but.

Their nuclear powered submarines have [deleted] capability at this point in time.

Their diesel powered submarines are very [deleted] in terms of their operations.

Their last Naval Attache in Washington was a submarine officer from the South China fleet. I talked with him a lot about their submarine operations and capabilities. Based on U.S. standards, and, indeed, based even perhaps on South American standards, the Chinese submarine operations are [deleted] at this point.

Senator **Glenn**. Would you just comment very briefly on the breakdown as far as depth, speed, and range? I don't want you to break down each class of submarine, but just in general do the Soviets have a comparable depth, speed, and range to ours? How do they compare?

What are the figures?

Admiral **Butts**. Generally speaking, sir, the Soviet submarines [deleted] and [deleted]. But in terms of megawatt hours and their reactors, they are [deleted].

So, in terms of [deleted] Soviet submarines are about [deleted] as ours.

Senator **Glenn**. Is that for time at sea per mission?

Admiral **Butts**. Well, that is in terms of time [deleted]. If you want to take a submarine out and operate it over a period of time, and have two comparable operations and [deleted] it, the Soviets are about [deleted] as we are.

Senator **Glenn**. How deep can they go and what kind of speed are we talking about?

Admiral **Butts**. Their operating depths for their SSN's generally are about [deleted] feet, which are [deleted] to the United States, or perhaps [deleted] as some of the best submarines.

The [deleted] with a [deleted] and the [deleted] undoubtedly have the [deleted] the [deleted] perhaps to as much as [deleted] feet. But that is the [deleted]. The on-board [deleted] attendant to going to those [deleted] I am not sure [deleted]. I am not sure the Soviets have yet [deleted] that kind of [deleted]. We have never seen the [deleted] go to any kinds of [deleted].

Senator **Glenn**. What is the maximum depth we can operate with some of our submarines—continually, not just on a temporary basis?

Admiral **Butts**. May I get that for the record, sir, from our submarine force? Those figures vary from class to class.

Senator **Glenn**. Thank you.

[The information follows:]

U.S. submarine operating depth

Submarine class	*(feet)*
SSN 578 and 585	[Deleted.]
SSN 594, 608 and 637	[Deleted.]
SSN 688	[Deleted.]
SSBN 616, 627 and 640	[Deleted.]
SSBN 726	[Deleted.]

Senator **Glenn**. How about speed—just in general?

Admiral **Butts**. General speaking, our top submarine speeds are around 30 knots [deleted]. The [deleted] the fastest submarine in the world, we have clocked and that is about [deleted].

Senator **Cohen**. Would you also compare the noise factor?

Admiral **Butts**. At [deleted] knots, the [deleted] sounds like a [deleted]. At high speeds, U.S. submarines have a major accoustic advantage. At low speeds U.S. submarines have an accoustic advantage, but it is one that is diminishing as each succeeding class of Soviet submarine comes on line.

The newest class of Soviet submarines are comparable to [deleted]. We expect, if they continue on the curve they are on right now, that they will achieve the quieting levels of [deleted]—in 7 to 10 years.

This is the Soviet aircraft carrier under construction on the building ways at Nikolayev in the Black Sea area. The Soviets have [deleted] this ship up to the [deleted] and you can see the beginnings of [deleted].

The [deleted] is being [deleted] in the [deleted] and will be [deleted] aboard.

This is the only large combatant that the Soviets have ever [deleted]. All of their other large combatants have been [deleted].

It is interesting to watch them do this.

This ship has been built rapidly, and we expect that it may be [deleted].

Two possible aircraft being considered as candidates to go aboard the carrier are the [deleted] and the [deleted].

Now it is not an easy thing to put carriers to sea with fixed wing aircraft, with catapults, and with everything that goes with it if you have never done this before.

The Soviets have been working at this for a long time. But there still is no guarantee that they are going to get this platform and the catapults and all the other appurtenances right in the timeframe that the ship itself will be ready, which will be perhaps by 1989.

The Soviets have a fair amount of experience with a smaller version of the aircraft carrier, the Kiev units, of which this is unit number four fitting out at the Black Sea. It is their summer resort. You can see the ice in the winter.

You know, I like to show pictures like this to people from Florida and California. [General laughter.]

There are four of these Kievs, three of them operational and this one fitting out. They have been around since 1976.

So the Soviets have been getting a little bit of experience at sea with VTOL—Forger kind of aircraft. We see them conducting [deleted] takeoffs and landings now, with the Forgers, which is [deleted]. We saw that last year with a couple of the Kiev class units.

But down at the [deleted] we have seen them [deleted]. They built a [deleted] and there is the suggestion, at least, that while they are working toward building a true CTOL carrier, they may be hedging their bets and building a capability for perhaps an [deleted] the Forger.

This is the [deleted] and the [deleted] is nearby.

We have seen some recent [deleted] that is more recent than this—this is the [deleted] down here [indicating]—which shows that the Soviets are actually [deleted]. There are some [deleted] on the [deleted]. The fair [deleted] has indicated that they are really working at it.

I told the subcommittee when last I appeared that the Soviets had actually been at about a [deleted] in the development of the [deleted]. They have started it again, and they appear to at least think they know what they are doing. Whether they do or not, we don't know.

We do know that the Soviets got their [deleted] technology from us.

Senator **Nunn**. Is it that hard to duplicate? Is it that technical, in terms of constructing that [deleted].

Admiral **Butts**. Yes, sir, it is.

I am told by the aeronautical engineers that it is very difficult to get those big [deleted] and the precision machining and everything. It is very easy to get that thing started and very difficult to stop it before it goes [deleted] which does insurmountable damage.

We in the United States apparently went through an extraordinarily long period of development, over many, many years, and we finally learned to use [deleted].

Senator **Nunn**. So, even though they may know what we do, it is still hard for them to duplicate?

Admiral **Butts**. Yes, sir.

The best case in point that I can give you there is we provided our [deleted] technology with all Western assistance, all U.S. assistance, to the [deleted] who apparently still are having problems with their [deleted].

So, with any luck, maybe the Soviets won't get it right.

Senator **Glenn**. Have they done a lot of work on their [deleted] systems? Are they onboard the aircraft, now, and not just on cables?

Admiral **Butts**. We have not seen any aircraft fitted with a [deleted] at this point, Senator.

It is going to be a while, as I said, before they get there. We have seen [deleted] aircraft—the [deleted] in addition to the [deleted] and the [deleted] out of this [deleted]. But we have not seen any of them fitted with the [deleted] at this point.

Senator **Glenn**. They will have some surprises coming, there.

Admiral **Butts**. Yes, sir, indeed they do. [General laughter.]

There is a vast difference between an [deleted] as opposed to just [deleted] as you well know.

Senator **Cohen**. Is there VSTOL that they are [deleted].

Admiral **Butts**. Yes, sir.

There is an aircraft that is [deleted] which they have had [deleted]. They are [deleted] with it. In the meantime, they apparently are trying to [deleted] like this [deleted] that I have described.

But clearly, a good [deleted] might be a better way for them to go than a true [deleted] based on their technology and their state of operational proficiency.

These [indicating] are airfields ashore. We have them in South Vietnam, Cuba, Angola, Libya, Syria, Aden, and Ethiopia. These are places where we now routinely see Soviet fixed wing aircraft. The activity that has attracted the most attention this past year has been at South Vietnam, where in 1983 they had 17 aircraft routinely stationed, they now have [deleted] augmented principally by the first-ever squadron of MIG-23 Floggers outside of the Warsaw Pact in Soviet hands.

[Deleted] of those aircraft are now operational, and they are working routinely in naval kinds of activity.

You know, in the Soviet Union, for the past several years we have seen the [deleted] into the [deleted]. They appear for the first time to have extended this notion to a point outside the Soviet Union proper for the Warsaw Pact.

Along with the aircraft buildup, we have seen a steady buildup of surface ships and submarines in South Vietnam, and a regular schedule of exercise activity.

This is one of the busiest places the Soviets have, and it is their only true overseas base at the present time. It is in a very strategic location.

This is [deleted] a few of the Soviet ships in port at the logistical support base. This was [deleted] at about the time of their big amphibious exercise last April, which [deleted] quite a bit by their activity near Cam Ranh Bay. It is the first time the Soviets had ever conducted a major amphibious operation in that part of the world.

Senator NUNN. What was it you said, that they [deleted].

Admiral BUTTS. Yes, sir. They [deleted].

I know that the [deleted] about that because the [deleted] came to see me and wanted to talk about the Soviet exercise activity that was going on in their [deleted].

Senator COHEN. Did he ask you for all of your [deleted] too?

[General laughter.]

Admiral BUTTS. No, sir.

He just wanted to talk about the Soviet presence and what we thought about this continued buildup. I told him I thought that the Soviets were a threat to world peace and that certainly an activity like this in a far-away part of the world where they sat astride some lines of communication key to a lot of people—not only to the [deleted] but to a lot of others—was something we all ought to be concerned about.

Senator COHEN. Are there nonnuclear zones being established around the globe?

Admiral BUTTS. There is no indication of that, sir.

CARRIERS

Senator GLENN. May I ask another question?

To go back to the carriers again, do you see all of the support ships that would be included in a task-force type operation? Are those all being brought along on the same time line? Do you have any projection as to how you think they can operate their carriers, at what distances, like we can, pretty much around the world? If they want to do that, are they building that same capability, or is it much more limited?

Admiral BUTTS. This particular carrier is one of a kind to this point. It will not be operational until at least 1989 or 1990.

It will take them at least 5 years after that before they are in any way proficient and using it as we would use an aircraft carrier.

So you are roughly looking at 10 years away.

As far as the other kinds of ships that go with it, yes, sir. The surface ships, the support ships, are already there in the Soviet navy and could very well form a part of a carrier battle group.

Senator GLENN. Do they mimic much of our type organization, type of ships and so on, as well as the way you would foresee them using it?

Admiral BUTTS. Pretty much—the *Kirov* nuclear powered guided missile cruiser, which has an excellent surface to air missile capability along with surface to surface missile capability, the large replenishment ships which are multipurpose, the two different kinds of destroyers, the *Udaloy*, which is basically an antisubmarine warfare platform, and the *Sovremennyy*, which is a surface warfare platform. There are no indications that the Soviets have thought about using [deleted] with their surface action groups or indeed a carrier battle group. But, certainly, they will have [deleted] to do that if they want to do that.

Senator WILSON. Mr. Chairman?

Senator COHEN. Senator Wilson?

Senator WILSON. Before we leave the slide on Cam Ranh Bay, I would be interested in your assessment of what the availability of this warm water port and major air facility really means in a strategic sense. This is a thing we really have not had to contend with in that part of the world before.

Admiral BUTTS. It sits astride some very key real estate, Senator. It is within striking range of the U.S. facilities in the Philippines. It can certainly cover all of the key straits in that area. The potential for a wide range of weapons, conventional as well as nuclear, on a large number of platforms gives us an element that we have never had before in that part of the world.

We routinely expect to see now, after all of these years, Soviets at places in the Mediterranean. But 25 years ago, I appeared before a group of people and briefed on the very first Soviet naval exercise in the Mediterranean, in the summer of 1960. There were two cruisers, a *Sverdlov* from the Black Sea, and a *Sverdlov* from the Baltic. They met in the Mediterranean and had an exercise.

We really paid a lot of attention to that.

Now we routinely see a large Soviet force in the Mediterranean. We routinely see large Soviet forces in the Indian Ocean. And now we are beginning to see an ever-growing Soviet force in Southeast Asia.

The Soviets have done this very well over the years. They whittle you down a while and you get used to it. After a while, you start to ignore it.

Right now, we are paying a lot of attention to this. My concern is that in the best American fashion a few years from now, we will have become accustomed to it, just as we have to the Soviets everywhere else in the world.

Senator WILSON. Thank you.

Admiral BUTTS. These, Mr. Chairman, are the major Soviet combatants under construction today—the *Kirov*, the *Krivak III*. I will talk about this in a moment because it is kind of interesting. There is the large carrier, *Kiev IV*, the *Udaloy*, the *Sovremennyy* that I mentioned, and the *Slava*, which is about a 12,000 ton cruiser. There are three of these that have been built, and they are [deleted].

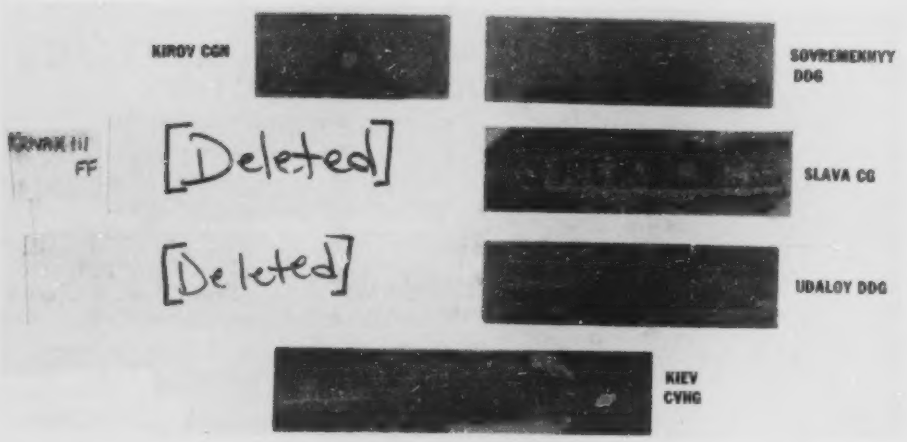
The *Krivak* is interesting because it was built not for the Soviet Navy but for the KGB.

KGB NAVAL FORCE

The KGB has its own small naval force. It is kind of like the U.S. Coast Guard, except the KGB can do things in peacetime that our Coast Guard can do only in war.

SOVIET NAVAL MAJOR COMBATANTS UNDER CONSTRUCTION

1 MAY 1984



They are using this ship in the Pacific, and they may have built a larger ship like this for the KGB in the Pacific because of the substantially larger areas of sea to cover.

We expect that more of these ships will be added to the KGB inventory each year.

Senator NUNN. What do they do?

Admiral BUTTS. They actually act as a patrol force.

Among other things, they harass Japanese fishermen with great regularity in the Pacific.

This particular ship will patrol areas like the straits into and out of the Sea of Okhotsk, going all the way down from Vladivostok, all the way up to Petropavlovsk and points in between.

Senator NUNN. Have they operated ships for a long time?

Admiral BUTTS. The KGB?

Senator NUNN. Yes.

Admiral BUTTS. Yes, sir, they have.

Routinely, we have seen them use small frigates like the *Grishas,* and we have even seen KGB *Grishas* in the Mediterranean. The KGB *Grisha* can usually be distinguished from the Navy *Grisha* because they are the ones with a [deleted]. They are a little bit [deleted].

This has good ASW capability and we may see them doing this kind of thing with that ship as well.

Senator COHEN. They pick up defecting swimmers, too.

[General laughter.]

Senator GLENN. Do they have them especially equipped for gathering information or monitoring satellites or anything like that?

Admiral BUTTS. No, sir.

In this case, they are not intelligence collectors except in an incidental sense. They are a true patrol force.

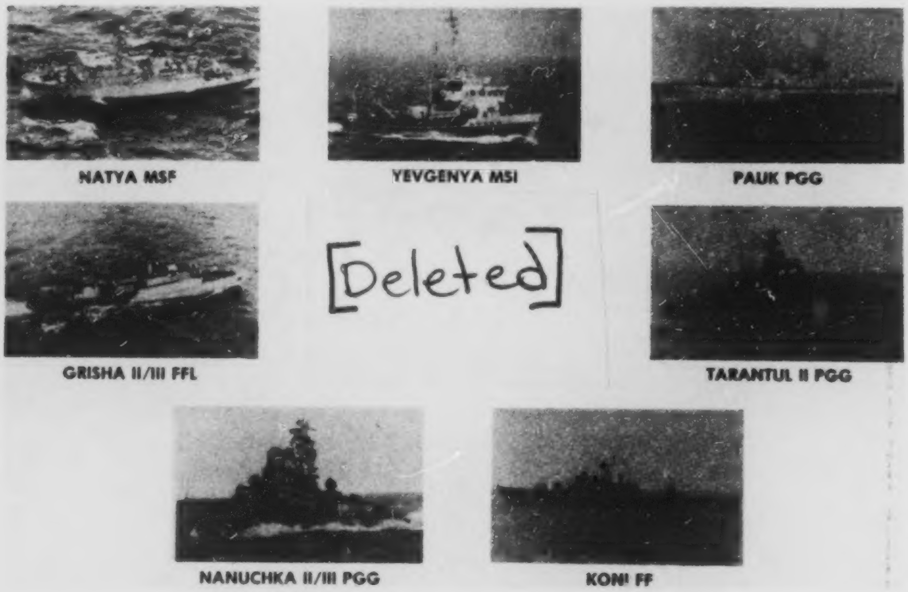
They are for state security. The KGB is the instrument for state security and intelligence gathering is only a part of that.

Senator GLENN. It operates independently of the Navy?

Admiral BUTTS. Yes, sir, it does.

It belongs to the KGB.

SOVIET NAVAL MINOR COMBATANTS UNDER CONSTRUCTION


NATYA MSF
YEVGENYA MSI
PAUK PGG
GRISHA II/III FFL
[Deleted]
TARANTUL II PGG
NANUCHKA II/III PGG
KONI FF

These are the minor combatants that are under construction. Several of them, like the *Koni,* are being built for export.

This is one of the little *Grishas* that I mentioned [indicating] that also is built for the KGB.

This *Ropucha* LST has been [deleted]. The last one of those is under construction right now. We expect to see some kind of amphibious program from the Soviets again very soon.

SOVIET NAVAL AUXILIARIES UNDER CONSTRUCTION

MIKHAIL RUDNITSKIY ARS

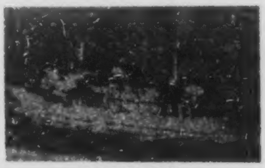
[Deleted]

[Deleted]

MARSHAL NEDELIN AGE

AMGA AEM

MALINA ARR



ELBRUS ASR

[Deleted]

MOD FINIK AGS

BAL'ZAM AGI

[Deleted]

These are some of the Soviet auxiliaries that are under construction right now. The one that is perhaps of the greatest interest is this large [deleted] space event support ship [indicating].

This has been built on the same [deleted] that the Soviets built [deleted]. They [deleted] to build this ship.

This particular ship and the *Marshal Nedelin* have an [deleted] which is [deleted]. It is quite possible that certainly this ship and the nuclear powered one will be used for [deleted]. Again, this is perhaps a part of the Soviet effort which includes the [deleted] and other things.

We will have to watch their operations over the next several years to see exactly [deleted] those ships.

This is the thing we call the [deleted]. It comes up from time to time. The Soviets have been working at this for years, literally since the late 1960s. It is a [deleted] vehicle and is associated with the Soviet [deleted] force.

In 1983 and in 1984, the Soviets have become particularly active with this class of [deleted] whatever you want to call it. It can also [deleted] but not to very [deleted].

Senator COHEN. They had a leak from Secretary Weinberger's [deleted].

[General laughter.]

Senator GLENN. What are the measurements of that?

Admiral BUTTS. It is about this figure here [indicating], about [deleted] meters long, and has a [deleted].

The interesting thing—and this is not a very good image—but this is a [deleted] for one of these [deleted]. Here is a series of [deleted].

Now, the SS-N-22 is a cruise missile which is launched from *Sovremennyy* destroyers. It is about a [deleted] nautical mile [deleted]. It flies in at an altitude of [deleted] feet, or thereabouts.

It is a very [deleted] against.

If you put that kind of missile system [deleted] you have a [deleted].

This was in 1983. We had some additional activity in 1984. This activity shows the [deleted] and actually [deleted].

This activity is continuing down here in the [deleted] area at this point in time.

These were the Soviet surface launches this past year—[deleted] ships in 1984, as opposed to [deleted] in 1983. The largest was this nuclear powered space event warship.

In terms of their overall activity this year, we saw a number of classic things, such as the activities in the Mediterranean, which were anticarrier in nature and in many cases using U.S. carriers as targets of opportunity, almost always involving [deleted] air force strike, including, usually, at least a [deleted] of Backfires. Backfire [deleted]. In this case, in one instance there were as many as [deleted] Badgers.

The Soviets believe in having odds on their side. Every time they take on a carrier, they never take it on with just a submarine, just a surface ship, or just an aircraft. It is always weapons platforms from different dimensions altogether, and in some kind of coordinated strike.

They really work at this. They are very dependent on their tattletales, the little AGI's, or other ships that happen to be in the vicinity.

If you can deny them targeting information, [deleted] it really complicates things for them, because their ocean surveillance system is [deleted] thing.

[Slide deleted.]

BALTIC SEA

In the Baltic, as I mentioned, this is very important real estate for them because it is their most immediate seaward extension of the central front in Europe.

This is where they practice their traditional role as the seaward extension of the land arm. They have run for the past several years a number of amphibious exercises. These exercises have been getting larger and larger. They have ranged up to as many as [deleted] ships. They brought ships all the way from the Soviet Pacific fleet to participate in exercises in the Baltic.

Now, the exercises are [deleted] In fact, they are just the opposite. They are rather [deleted]. But large numbers of ships participate. Basically, the exercise is carried out. Nobody breaks down and they seem to go about it in a fairly orderly fashion.

That would not have been the case a few years ago. There would have been any of a number of people who would have had to be towed in. They would not have tried so large a coordinated exercise.

They are getting better at what they are doing.

The biggest exercise, by far, was this big Western fleet exercise on the [deleted] up in the Norwegian Sea, another very important part of the world for us and for them, in which they simulated aggressor groups and attack with a wide variety of surface, air, and submarine platforms.

They had about [deleted] surface units and submarines out there and [deleted] aircraft sorties.

This was the largest Western fleets' exercise in that area that we have ever seen.

[Slide deleted.]

Looking at the rest of the world quickly, Senator Cohen mentioned the number of countries that are getting things. These are countries that have received [deleted].

In 1984, these were the significant aircraft deliveries [indicating].

There were large numbers of ground combat, and they got one more Foxtrot class submarine for a total now of three; one of the Koni class frigates, which I showed you earlier was being built for export; some more patrol boats; and [deleted] in-shore minesweepers which the Soviets are also building for [deleted].

EXOCET MISSILES

MM-38 (Range 42KM): Argentina; Brazil; Brunei; Chile; Colombia; Ecuador; Indonesia; Morocco; Oman; Pakistan; Peru; and South Korea.

MM-40 (Range 63KM): Argentina; Bahrain; Ecuador; Kuwait; Morocco; Oman; Qatar; Tunisia; and UAE.

AM-39 (Range 42KM): Argentina; Iraq; Pakistan; and Peru.

Equally troublesome with Soviet deliveries is the proliferation of Free World vessels. These are Exocets, the land attack and the air attack version, in a wide variety of countries, not all of them friendly to us.

Senator COHEN. Did that slide say South Korea there? I cannot quite see it?

Admiral BUTTS. Yes, South Korea is there.

Senator COHEN. Are the Soviets selling to South Korea?

Admiral BUTTS. No. This is French. The Exocet is French.

GABRIEL MISSILE (RANGE 21-36KM)

Argentina; Chile; Ecuador; Israel; Kenya; Singapore; Taiwan; and Thailand.

The Israeli Gabriel missiles are shown here. They go to these countries [indicating].

OTOMAT MISSILES

MK-1 (Range 60KM): Egypt; Libya; and Venezuela.

MK-2 (Range 180KM): Egypt; Libya; Peru; Saudi Arabia; and Venezuela.

The Italian Otomats are shown here. Of course, the ones that Libya has are [deleted].

Harpoon (Range 110KM): Australia; Egypt; Iran; Israel; Saudi Arabia; and South Korea.

Here is our own Harpoons.

Senator WILSON. What is the maximum range of any Libyan missile?

Admiral BUTTS. About 50 miles.

One of the things that concerns us about Libya is the report that they have purchased patrol boats that can be turned into a seaborne version of a kamikaze. I talked with the committee about that concern earlier. We have not seen them use those boats against anything, but we know they have them.

One thing I know that you have heard about and that I wanted to talk about a little bit is that the Soviets do a lot of things right, but some things they do terribly badly. It is kind of like the little girl with a curl.

In this case, with the Severomorsk explosion, they really did wipe out [deleted] of their ammunition inventory in the [deleted].

It is very interesting. After they went in and cleaned up the mess, they are [deleted] just the [deleted]. It does not make any sense. They have [deleted].

In addition to this explosion, they had [deleted] not this large. But they were also [deleted].

Senator COHEN. Were SEALs involved in that?

Admiral BUTTS. No, sir.

[General laughter.]

I would like to stand up and take credit for it in some way, but I think in this case it was just instant ineptitude on the part of the Soviets.

You can see the [deleted] all the way up to [deleted] that were in the [deleted]. We thought at first that there might have been some [deleted] because the [deleted] are in the area. Clearly the [deleted]. But it is also equally clear now that they were well enough [deleted] in any way damaged.

Senator GLENN. What is the replacement time?

Admiral BUTTS. They have [deleted] and they should have [deleted] certainly, within the [deleted] which is [deleted]. They will be [deleted].

They have such [deleted] elsewhere, plus the capability to produce more. The infrastructure that they have built is something that is as troublesome as the actual things that they have produced.

Another development that has continued to be of interest to us is the Soviet slow bringing on line of their [deleted]. This is no longer impossible. We first saw it in [deleted] and we now know for sure that this is an [deleted].

They are [deleted] it and we expect it to be operational this year. This obviously will be of great benefit to them in supporting their [deleted] and particularly those [deleted].

Someone asked me if the Soviets had to do an [deleted] and my response was whatever you did to this environment would be bound to improve it.

Sir, subject to your questions, that completes my overview of the highlights.

[The prepared statement of Admiral Butts follows:]

PREPARED STATEMENT OF REAR ADM. JOHN L. BUTTS, U.S. NAVY, DIRECTOR OF NAVAL INTELLIGENCE

I am pleased to appear before you again as Director of Naval Intelligence and appreciate the opportunity to update this subcommittee on foreign naval developments.

In my congressional testimony last year I described the progress the Soviet Union is making in building a balanced fleet capable of accomplishing the full range of naval tasks. I reported the Soviets in 1983 began construction of a conventional take-off and landing (CTOL) aircraft carrier and a third *Kirov* nuclear powered guided missile cruiser; continued fitting out the fourth, and last, *Kiev* class carrier and a second *Kirov* cruiser; launched the third unit of the smaller *Slava* class guided missile cruiser; continued construction of two guided missile destroyer classes—*Sovremennyy* and *Udaloy;* and completed the first *Krivak III* class frigate. They also launched the first units of two new nuclear attack submarine classes—*Mike* and *Sierra*— and [deleted] more *Victor* III class SSN's, and continued development of the SS-NX-21 Tomahawk-like land-attack cruise missile as well as the larger [deleted]. I further reported the Backfire bomber inventory in Soviet Naval Aviation reached [deleted] aircraft and the number of Forger VSTOL fighter-bombers available for the *Kiev* class carriers increased to [deleted] I described Soviet naval operations in 1983 which were highlighted by a worldwide exercise, the first in eight years, conducted under realistic simulated wartime conditions.

The growth in Soviet naval power continued in 1984 but at a slightly slower pace in terms of launches than in the previous year. Nonetheless, the Soviets made significant strides, evidenced by continued construction of the CTOL aircraft carrier and the third *Kirov* class CGN; fitting out of two *Slava* class cruisers; and construction of additional *Sovremennyy* and *Udaloy* guided missile destroyers. Submarine programs included the launching of the first *Delta* IV class and the third Typhoon nuclear powered ballistic missile submarines; [deleted] *Victor* III and the first of the new *Akula* class SSN's; and [deleted] *Kilo* class SS units. Early this year, they also [deleted] Soviet Naval Aviation acquired [deleted] Backfire C bombers and the inventory of new ASW and utility helicopters also increased. Operational highlights included continued "analogous response" SSBN and SSGN patrols off our coasts, periodic deployment of Bear F ASW aircraft to Cuba, the twenty-third and twenty-fourth Soviet naval Caribbean deployments, and a major Northern Fleet dispersal and deployment exercise. Also, Moscow strengthened substantially the forces at its first true overseas base—Cam Ranh Bay, Vietnam.

Surface ship launches in 1984 included [depleted] principal combatants, about [deleted] small combatants, [deleted] mine warfare ships, and [deleted] auxiliaries for a total of some 48 units compared to about 60 in 1983. Many of the small combatants and most of the mine warfare ships continue to be for export.

The most noteworthy surface ship construction program is, of course, the CTOL aircraft carrier building at Nikolayev on the Black Sea. Using [deleted] and [deleted] the Soviets have [deleted]. The [deleted] the carrier to be [deleted]. If fitting out proceeds space, sea trials could occur as early as 1988 with initial operational capability following about 1990. The overall length of the carrier is about 1,000 feet, its [deleted] and it should displace 65,000 to 75,000 tons. We continue to estimate it will incorporate nuclear power and embark 35 to 60 aircraft. [deleted] could be built by the [deleted].

We project the airwing for the carrier will consist of fighter (or fighter-attack), AEW, ASW, reconnaissance and utility aircraft. Variants of the Helix helicopter could perform all but the fighter-attack mission. Though the [deleted] for that role. V/STOL aircraft may, however, also form part of the complement.

The Soviets' lack of experience with CTOL carriers suggests it will be the mid-1990's before they achieve a reasonable standard of proficiency in such complex operations. Nonetheless, the eventual ability to operate high performance aircraft at sea will help the Soviet Navy expand its wartime area of operations beyond the range of friendly land-based air and will add another dimension to the threat to our maritime forces. It will also enhance Moscow's capability to project power and engage in naval diplomacy worldwide.

Work on the last *Kiev* class carrier—unit 4—is progressing [deleted] the ship is still fitting out at Nikolayev and [deleted] yet. Unit 4 will differ [deleted] from its predecessors in weapons and sensor fit. It will have the SS-N-12 antiship cruise missile system but [deleted] and likely will be fitted with [deleted] for the new [deleted] SAM system. This new SAM system should give unit 4 a better capability against cruise missiles and low flying aircraft.

With respect to Soviet cruiser programs, [deleted] and probably [deleted]. It's too early yet to [deleted] but we expect it will [deleted] *Kirov* unit 2, *Frunze*, conducted sea trials last fall and is now operational, joining unit 1 in the Northern Fleet. *Frunze* incorporates numerous changes to the original design intended to improve self-defense capabilities, including [deleted] SAM positions and a twin 130mm gun. Both operational units carry the SS-N-19 long range antiship cruise missile and the SA-N-6 area air defense and SA-N-4 point defense SAM systems. We believe they also have [deleted]. This system will [deleted]. Either *Kirov* or *Frunze* likely will transfer to the Pacific in 1985. We expect a total of [deleted] *Kirov*'s to be built by the [deleted].

The first unit of the smaller SLAVA class cruiser became operational last year, two more continue to fit out in the Black Sea and [deleted]. Work on these units is proceeding [deleted]. The reasons for this [deleted]. Nonetheless, unit two should be ready for sea trials in 1985. Armed with the long range SA-N-6 and short range SA-N-4 SAM systems, sixteen SS-N-12 long range antiship cruise missiles, a twin 130mm gun and torpedoes, the Slava's will enhance the Soviet Navy's antiship and antiair warfare capabilities.

Two major destroyer building programs remain active.

Construction of the [deleted] helicopter-carrying *Sovremennyy* class continues at Leningrad. The sixth unit was launched last year and [deleted]. Four units are operational. *Sovremennyy* carries eight SS-N-22 supersonic antiship cruise missiles. In many respects, the SS-N-22 is the Soviet's highest technology antiship missile. It approaches the target at [deleted] We now estimate [deleted] *Sovremennyy*'s will be [deleted]

Four *Udaloy*'s are operational and construction is ongoing at [deleted] although [deleted] this year. The [deleted] was [deleted] from [deleted]. Slightly larger than *Sovremennyy*, *Udaloy* is optimized for antisubmarine warfare with new bow-mounted and towed-sonars, stand-off ASW weapons, and the capacity to embark two HELIX ASW helicopters. This destroyer class additionally is equipped to carry the new [deleted] SAM system and, on the latest units, a [deleted]. What we believe is a probable [deleted] has been [deleted] unit, indicating this new SAM may be [deleted] [deleted] should give the *Udaloy*'s an improved AAW capability, especially against cruise missiles. We project a total of [deleted] will be built by the [deleted].

The first *Krivak III* class WFFG completed sea trials last year and transferred to the Pacific in October. Interestingly, this ship and presumably the other [deleted] building are not for the Navy but for the KGB. The Maritime Border Guard (MPO) of the KGB operates over [deleted] combatants and has responsibilities roughly analogous to the patrol functions of our Coast Guard. In wartime, the MPO would be subordinate to the Navy and perform important coastal defense tasks, especially ASW. The MPO has thus received [deleted] of the newest small combatants since the mid-1960s, including hydrofoil combatants, and the latest ASW sensors and weapons. In the 1970s and 1980s, the MPO received new construction *Grisha*, *Pauk* and *Muravey* units, significantly upgrading its patrol and ASW capabilities. *Krivak III* is, however, the largest frigate yet received by the MPO and extends the Border Guard's operational capability significantly farther seaward.

KGB subordination of the *Krivak III* also means there is [deleted] program. A large [deleted] class ships. [deleted] but this [deleted] is no substitute for the *Krivak*'s. Consequently, I expect to see a [deleted] within [deleted].

The hiatus in amphibious ship construction in the Soviet Union continues. [deleted] is building at [deleted] but it is [deleted] the Warsaw Pact. A new, larger [deleted] probably will begin [deleted]. Two *Ivan Rogov* LPD's are operational and no further construction of this class is anticipated. A [deleted] and could be [deleted]. The Soviets continue to pursue an active program for the development and production of air cushion vehicles (ACV) to improve their capability to conduct assault landings on the USSR's maritime flanks. Some [deleted] units are in service. The first unit of the new [deleted] class was launched last year and construction continues on [deleted] other distinct classes. The [deleted] are being [deleted] capacity. In addition, development of [deleted] continues. We have seen [deleted] trials and their [deleted] make them most suitable for such roles. But they could have a [deleted] applications. [Deleted] indicating the Soviets are [deleted]. A massive [deleted] that would permit [deleted] is under way. [deleted] could begin in the [deleted].

The Soviets are building two classes of large, space event support ships. The first *Marshal Nedelin* class unit is now operational in the Pacific Ocean Fleet. A second unit is under construction [deleted] [deleted] probably is [deleted] also [deleted]. Both classes are [deleted] but we are [deleted] with space event support ships. They also probably [deleted].

In addition to its surface naval forces, Moscow operates well developed maritime supporting forces integral to the Soviets' concept of seapower.

The merchant fleet, with over 1,700 vessels, is fourth largest in the world and has expanded by over [deleted] in each of the [deleted] Soviet merchant ships incorporate features which enhance their military utility, such as [deleted] [deleted] systems, and regularly provide logistics support to deployed naval forces. Recent acquisitions have centered on Roll-on/Roll-off vehicular cargo ships, which provide a significant potential amphibious lift capability. At least [deleted] RO/ROs are in the Soviet merchant fleet and [deleted] more are on order. The merchant fleet could provide a theoretical administrative lift capacity for the entire Soviet Naval Infantry and [deleted] Army motorized rifle divisions.

The Soviet research fleet, larger than the rest of the world's combined, includes [deleted] ocean-going ships which conduct research of actual or potential military value. Information so gathered contributes to the Soviets' increasingly precise knowledge of the oceans and helps enable the Navy to make optimum use of its weapons, sensors and platforms. [deleted] new classes were [deleted] and [deleted] research ships [deleted].

Overall, then, the trend in surface ship programs continues to reflect an emphasis on large, relatively complex units better able to perform the full spectrum of naval missions at greater distances from the Soviet Union. These programs also evidence Moscow's commitment to achieving a "balanced fleet"; one which encompasses all elements of seapower.

As regards submarine developments, Soviet efforts to strengthen their sea-based nuclear strike capability remained strong in 1984. Moscow maintains 79 ballistic missile submarines, 62 of which are "modern" and therefore accountable under the provisions of SALT I. Over half of the Soviet Navy's modern SSBNs are *Typhoon* and *Delta* class units capable of striking the United States from the USSR's home waters. These classes have also demonstrated the capability to [deleted]. [Deleted] where [deleted] are often [deleted].

Two *Typhoon* SSBNs are now operational and a [deleted] [deleted] *Typhoon* carries 20 SS-N-20 SLBM's, each with [deleted] multiple independently targetable reentry vehicles. We believe a [deleted] is [deleted] as early as this year. It probably will [deleted] and have [deleted] Typhoon is [deleted] than earlier SSBN's and [deleted] in its design. Additional *Typhoons* are building and we project a total of [deleted] units by [deleted].

Early last year, the first *Delta IV* unit, latest in the *Delta* class SSBN series, was launched [deleted] A [deleted] [deleted]. Slightly longer than the *Delta III*, it will deploy the SS-NX-23 SLBM, the follow-on to the SS-N-18. The SS-NX-23 is [deleted] more accurate than its predecessor and is estimated to carry [deleted] MIRVs. It began sea-based testing [deleted] last year. [deleted] more *Delta IV* is building.

[Deleted] units of the older *Yankee I* class SSBN remain in service. Although they continued to patrol off both US coasts in 1984, *Yankee Is* are still being dismantled in compliance with the SALT I agreement as new SSBNs begin sea trials. To date, [deleted] *Yankee Is* have been dismantled. [Deleted] by the [deleted]. Another will soon rejoin the fleet as an SSN. The remaining dismantled units will likely be reconfigured as SSNs or retired.

In addition to equipping their newer SSBNs for under ice operations, the Soviets are taking other measures to decrease the vulnerability and thereby enhance the strategic strike capability of their SSBN force. An [deleted] system for [deleted]. It has been [deleted] this year. [Deleted] submarine tunnel complexes are under construction at SSBN bases in the Northern and Pacific Ocean Fleets. They could afford concealment and some protection from nuclear weapons effects to SSBNs sheltered within them. Also, we believe a [deleted] system is [deleted]

Maximum [deleted] sufficient to provide some [deleted].

Sierra SSN unit one was launched in 1983 and is now operational in the Northern Fleet. Somewhat larger than the *Victor III*, it is much [deleted] *Sierra* is probably [deleted] and has the [deleted] of any Soviet submarine class, reducing its [deleted]. [Deleted] Some [deleted] *Sierra*'s are projected to be built at [deleted].

The new *Mike* class SSN, launched in 1983, has completed sea trials and should become operational this year. Because it was [deleted] we think *Mike*, too, is [deleted] and probably powered by a [deleted] nuclear reactor. It is probably quieter than most other Soviet nuclear submarines and may have some performance capabilities superior to those of US submarines—a [deleted] [deleted] and a [deleted]. Except for a reconfigured *Yankee* SSN, the 10,000 ton *Mike* is also the largest attack submarine in the world. We project [deleted] units will be built before production terminates in the [deleted].

Last July, the Soviets launched the first unit of yet another new SSN class—*Akula*. [Deleted]. *Akula* is similar in size to the *Sierra* but [deleted]. it from that class. It is probably [deleted] and we expect its [deleted] characteristics will be similar to those of the *Sierra*. We estimate about [deleted] units will be built by the [deleted].

What we believe are the final *Victor III* SSNs were launched last year at [deleted] raising the total built to [deleted]. The *Victor III*'s are equipped with the Soviets' top-of-the-line sonar systems, including [deleted] and probably incorporate a [deleted]. These submarines often are assigned ASW missions off our coasts and, as you recall, it was a *Victor III* that ran afoul of USS *McCloy's* towed array cable in November 1983. That submarine returned to the USSR last winter with its propulsion system, if not its dignity, fully repaired after a stay in Cuba.

As I mentioned earlier, dismantled *Yankee I* SSBNs are being converted to SSNs. One such unit is nearly operational and [deleted]. [deleted] more are undergoing conversion. We believe [deleted] *Yankee* SSN's will be produced. These units, too, are being equipped with the [deleted] and probably have had their [deleted]. The large internal volume of the *Yankee* SSN's and their precision navigation equipment make them viable candidates for carrying the SS-NX-21.

Oscar class SSGN [deleted]. The [deleted] *Oscars* are operational in the Northern Fleet. Armed with 24 submerged-launch, 300 mile range supersonic SS-N-19 cruise missiles and fitted with [deleted] they are potent antiship warfare platforms. With production continuing at the rate of [deleted] about [deleted] *Oscar*'s would be built by the [deleted].

The Soviets appear to be [deleted] in the SSGN force. Some [deleted] *Echo II* units. Although a few [deleted] to carry the long range SS-N-12 antiship missile, the Soviets seem to be [deleted] with this class and—[deleted] last year. The current [deleted] and could lead to [deleted] available for antisurface warfare later this decade. The Soviets are [deleted]. Hence, we believe a [deleted] missile—may now [deleted] and could be [deleted] within the next few years.

A single diesel attack submarine construction program is active in the Soviet Union—the *Kilo* class. [Deleted] units were [deleted] last year. [Deleted] is the [deleted] indicating *Kilo*'s will be built in numbers for both the Soviet Navy and export. We believe [deleted] units will be in the Soviet inventory by the [deleted]. As they come on-line, we expect overaged *Whiskey*'s and the few remaining *Romeo*'s will be phased out of service.

Over the past five years, the Soviets have launched an unprecedented number and variety of nuclear-powered attack submarines. The emphasis in construction has clearly shifted from ballistic missile units. We believe this construction program is being driven primarily by Moscow's intention to close the technological gap between Soviet and Western submarines. Since the introduction of the *Victor III* class SSN, the Soviets have steadily reduced the technological inferiority of their newest submarines. Progress in Soviet submarine quieting, [deleted] classes, and sonar and signal processing improvements have [deleted] reduced the acoustic advantage of [deleted]. Moreover, if trends in these areas continue, the newest Soviet submarines should [deleted] class by [deleted]. Only about [deleted]. Nonetheless, during the next decade, these building programs will result in a Soviet submarine force which is predominantly nuclear powered, operationally more flexible, and significantly better able to fight prolonged, short-range submarine engagements—especially in defense of Soviet SSBNs.

Two sea-based, long-range nuclear land attack cruise missile systems continue in development. The subsonic SS-NX-21, similar to our Tomahawk, is estimated to have completed testing. We have no evidence it is operational yet but deployment is imminent aboard one or more [deleted] candidate SSN classes—*Victor III, Yankee, Sierra, Akula* and *Mike*. The second system, [deleted] is a [deleted] missile which probably will reach IOC aboard the reconfigured *Yankee* [deleted].

The SS-NX-21 probably is intended primarily for theater applications, but also likely would be employed for strikes against US targets such as command, control and communications facilities and naval bases. We believe it ultimately will be deployed [deleted] on a number of the candidate submarines. [Deleted] deployment is likely to occur aboard the [deleted] because the *Yankee, Sierra, Akula* and *Mike* class SSN's—our other primary candidates—will be [deleted].

The [deleted]. It is [deleted] but we know [deleted]. We expect a [deleted] this missile. We have [deleted] but believe the mission of the [deleted] will include [deleted] targets.

A further aspect of Soviet land attack cruise missile development concerns the promised "analogous response" to NATO INF modernization. For over a year, [deleted] *Delta* class SSBN and occasional *Echo II* class SSGN patrols—the interim response—have augmented the normal *Yankee*'s off our coasts. Although these forward *Delta* deployments reduce missile flight time compared to that from normal northern latitude patrol areas, they also increase the *Delta*'s vulnerability to US ASW forces and [deleted]. Therefore, we believe the Soviets will replace the *Delta*'s initially by quieter, SS-NX-21-equipped submarines off our coasts. We believe [deleted] submarines also will be deployed in this fashion. Such patrols would, in the Soviet view, offer the potential dividend of requiring the US to invest in a costly, expanded early warning/air defense system to counter the new cruise missile threat. These SLCM patrols almost certainly will become [deleted].

Turning to air developments, Soviet Naval Aviation acquired over the past [deleted] more Backfire bombers, bringing the total now to [deleted]. The latest deliveries were of the Backfire C variant—an improved version. The SNA Backfire force is [deleted] of about [deleted] in the Black Sea Fleet and [deleted] each in the Pacific Ocean and Baltic Sea Fleets. [Deleted] indicate a [deleted] in the Black Sea Fleet. We expect about [deleted] as Backfire's supplant the Badger C/G force as the primary airborne strike platform of the Soviet Navy.

The inventory of Forger A VSTOL fighter-bombers remained stable last year at [deleted] aircraft [deleted] of which are used for [deleted] training. An improved VSTOL to replace Forger is [deleted]. A possible [deleted] has been identified. We expect the Forger follow-on to have better range, endurance, payload, avionics and flight characteristics than Forger. It could [deleted] and likely would be embarked on the *Kiev* class and, perhaps, the carrier building in the Black Sea.

Two noteworthy developments occurred [deleted] the [deleted] we believe will be used in the [deleted]. First, the Soviets completed the [deleted] at the facility. [deleted] you will recall, previously were constructed. [Deleted]. Although [deleted]. earlier, as mentioned [deleted] about to [deleted] with the Soviet Air Force. Modified to perform the [deleted] it would add a significant new dimension to the sea-based air threat. The other development was the construction of a [deleted].

We believe the [deleted] for the Forger follow-on. Such a capability would [deleted] of Soviet VSTOL aircraft operating from [deleted] carriers.

The new Soviet [deleted] is nearing operational status. We believe this [deleted].

[Deleted] with some naval units and most of the Soviets' newest fighter aircraft. To support the incorporation of [deleted] the Soviets are evolving a [deleted] which promises to [deleted] and help enable Moscow to [deleted] farther to sea than ever before.

Expansion and improvement of the assault capability of the Soviet Naval Infantry (SNI) continued last year. Since 1979, SNI has been reorganized and manning has increased from 14,000 to about [deleted] troops. New weapons—most recently [deleted]—have been introduced as well. A new [deleted]. We believe a [deleted]. We expect continued modest growth in the size of the naval infantry. Total manning could reach about [deleted] in the [deleted].

Progress in conventional naval weapons developments in 1984 was something of a "one step forward, two steps backward" proposition for the Soviets. On the positive side—from Moscow's perspective—[deleted] continued at a steady pace. Estimated to have a range of better than [deleted] it has a [deleted] capability and we think it is deployed now on many Northern and Pacific Ocean Fleet [deleted]. Other new [deleted] likely also have the capability to carry the [deleted]. We have [deleted] which was long believed to be [deleted] weapon, has an [deleted] as well. Widely deployed throughout the Soviet [deleted] navy, it gives classes such as the [deleted] a better [deleted] capability than was previously estimated. [Deleted] weapon development is progressing at [deleted]. The Soviets could deploy a [deleted] probably a [deleted] within the next few years. They are also developing a [deleted] with potential naval applications for [deleted] but it is unlikely to be [deleted].

On the other side of the ledger, accidents in the Severomorsk area last spring deprived the Soviets of a [deleted] number of front-line weapons. The most spectacular occurred at the [deleted] and resulted in the loss of more than [deleted] SAM's, [deleted] missiles and [deleted] missiles. Those weapons not destroyed outright undoubtedly suffered damage to sensitive components from the shockwaves, fire and flying debris that accompanied the explosions. The losses left [deleted] aboard its [deleted] but it will be [deleted] also occurred [deleted]. Obviously, the Soviets have a problem with ordnance safety; however, [deleted].

The weapons loss at Severomorsk was [deleted] [deleted] but it represents [deleted] Soviet inventory. For example, their [deleted] and their [deleted]. These [deleted] and [deleted] graphically underscore Moscow's preparedness to wage warfare—including protracted warfare—at any level of hostility.

I'd next like to mention an additional development that has broad implications. For some time, we have attributed to the Soviets a thorough knowledge of certain low observables technology. We have been [deleted] in their weapons and platforms. That situation [deleted]. We believe Moscow has embarked on an intensified "stealth" technology research program. Although [deleted] their Navy could deploy some retrofitted aircraft and cruise missiles this decade whose radar signatures will be reduced by as much as [deleted] [deleted] platforms will be difficult to detect and locate, particularly when flying at low altitudes.

At the other end of the altitude spectrum, Soviet military doctrine describes space as an extension of theaters of military operations, not a separate arena for conflict. Their space program reflects that philosophy. More than 70 percent of their total program—which has grown about [deleted] since 1978—is devoted to military activity. The Soviet commitment to exploiting the military potential of space is exemplified by their man-in-space program. To date, they have logged well over 3,000 man-days in space, better than double our record. Moscow's manned program goal is the perfection of a space station capable of supporting multiple crews for long periods of time. Such a station would serve as an observation post and intelligence collection vehicle, enhancing substantially Soviet ocean surveillance capabilities. In other space programs, the Soviets expanded their existing capabilities with the orbiting of [deleted] new satellites. [Deleted] was the probable [deleted] for a [deleted] system. Development of this [deleted] will contribute to Soviet [deleted] Moscow also orbited a probable [deleted] satellite last fall. We believe it [deleted] will be used to [deleted] and, perhaps, [deleted] satellites. The new generations of ships and submarines entering the Soviet fleet are equipped to receive surveillance and targeting data directly from satellites and we believe their navy will rely increasingly on such data in the years ahead. The Soviet space program as we know it today—large, active and well coordinated—will continue with some 100 launches per year to support a constellation of about 130 satellites in orbit.

This panoply of sophisticated and increasingly capable Soviet platforms, weapons and sensors has been melded into a naval readiness philosophy far different from our own.

Their readiness philosophy stresses preparedness to deploy for combat on short notice rather than extended operations at sea. Even those units deployed abroad spend a large amount of time at anchor, minimizing wear-and-tear on machinery and equipment. Under this system, operational experience and some crew proficiency are sacrificed to achieve high levels of material readiness. The result is, given [deleted] notice, we believe [deleted] of the Soviet Navy's major [deleted] would be combat ready. The figure for Soviet Naval Aviation is [deleted].

The peacetime disposition of the Soviet Navy is thus governed by the wartime requirement to generate maximum force levels on short notice. Consequently, only about 15 percent of the overall fleet is regularly deployed away from home waters. Nonetheless, Moscow maintains a robust naval presence in the world's important maritime areas and Admiral Gorshkov can truly claim "the flag of the Soviet Navy flies over the oceans of the world." On average last year, the Soviets kept [deleted] ships in the Atlantic, [deleted] in the Mediterranean Sea, [deleted] in the Indian Ocean, and [deleted] in the Pacific, including the South China Sea. The level of out-of-area deployments, measured in ship-days, was up slightly from 1983 and they continued to deploy in increasing numbers their newest, front-line assets. The *Kirov* CGN, for example, conducted its initial operational out-of-area deployment, an *Udaloy* class DDG accompanied the helicopter carrier *Leningrad* on their first Caribbean deployment and, in still another first, a *Sovremennyy* DDG operated in the Caribbean area.

Out-of-area operations by Soviet naval aircraft have increased steadily since 1979, a trend which continued last year. Bear F/Mod III long range ASW aircraft—first deployed to Cuba in March 1983—became regular visitors to that island. The longest and most active Bear F deployment occurred in April and May when a pair conducted a series of ASW missions off Jacksonville. Simultaneously, Cuba-deployed Bear D reconnaissance aircraft monitored our exercise OCEAN VENTURE 84 and conducted surveillance operations against the USS *America* battle group enroute the Mediterranean. The Soviets also maintained a near continuous ASW aircraft presence in the Indian Ocean with IL-38 MAYs deployed to Ethiopia and South Yemen. In the Mediterranean, this year as last, Syria and Libya hosted deployed Soviet reconnaissance and ASW aircraft—in [deleted] Soviet ASW aircraft deployments [deleted].

The Soviet presence at Cam Ranh Bay continued to expand dramatically; the facility is now Moscow's first true overseas base. On average, [deleted] Soviet surface combatants and [deleted] submarines are present at Cam Ranh Bay. These combatants are supported by about seven auxiliaries and a range of shore-based maintenance, communications and intelligence facilities. A composite aircraft unit of [deleted] Badger (including the first strike variants since 1970 to be deployed overseas), [deleted] Bear D, and [deleted] Bear F aircraft also is based there. [deleted] is provided by a [deleted]. This base now accommodates the largest concentration of Soviet naval assets outside the Soviet Union and, given the infrastructure improvements under way, an increase in the size of that presence likely is in the offing. [deleted] Flogger air defense fighters began arriving in December and have improved the Soviets' ability to defend the base. Cam Ranh Bay is an important facility for more easily sustaining Soviet naval presence in the Indian Ocean and South China Sea, and it also has limited wartime utility as a staging base for attacks on friendly forces and facilities in the Western Pacific.

Last year, again, the Soviets conducted a major multi-fleet exercise. Though smaller in size than 1983's worldwide exercise, the 1984 SPRINGEX was the most comprehensive evidence to date of Soviet naval strategy. It included activity in all the fleets but was most intense in the west. Some [deleted] ships, [deleted] aircraft and scores of submarines participated. [Deleted] of the Northern Fleet's [deleted] combatants took part. These units deployed to control the seaward approaches to the USSR and protect the Soviet SSBN force. The exercise also [deleted] of Soviet doctrine—[deleted]. Extensive air defense activity and antisurface and antisubmarine warfare evolutions occurred. Air operations were highlighted by participation of [deleted] Backfire bombers in the longest-range strikes into the Norwegian Sea yet conducted. The *Kirov* GGN, escorted by twelve units, including *Sovremennyy* and *Udaloy* DDG's, [deleted] and participated in sophisticated sea control operations. The *Kirov* formation was the largest Soviet surface combatant grouping ever noted out-of-area. Many attack submarines deployed to the Norwegian Sea, [deleted] while others [deleted].

The exercise was conducted under realistic simulated wartime conditions and included the Soviets' newest ships, submarines, and aircraft. More than any other to date, this exercise demonstrated the Soviets' capability to put large numbers of units to sea on short notice and the Navy's readiness to perform its critical strategic offensive and defensive missions. It was well-coordinated and executed. The ease with which the [deleted] [deleted] portions of the exercise was especially impressive and is further evidence of Moscow's [deleted] approach to warfighting.

Annually, the Soviets and their East German and Polish allies form a combined Warsaw Pact squadron and exercise in the Baltic and North Seas. Generally, the exercise is rudimentary; however, last year's reflected an unusual degree of sophistication. For the first time, the combined squadron transited to Northern Fleet waters and [deleted] scenario. The exercise demonstrated the increasing operational and technical maturity of the Eastern Europeans as well as Soviet plans to integrate them more fully into Pact wartime operations.

In the Mediterranean last spring, the Soviets conducted their largest anticarrier warfare exercise in some years. The Mediterranean Squadron's afloat strike forces nearly doubled for the exercise and, at least [deleted] probably were [deleted]. During a later antisurface exercise, [deleted]—for the first time—probably [deleted].

In the Pacific, the Soviets, in conjunction with their Vietnamese allies, conducted a major naval exercise in the South China Sea last spring. The *Kiev* class aircraft carrier *Minsk* and the second *Ivan Rogov* class LPD were among the participants. The exercise highlight was an amphibious landing on the Vietnamese coast—the first demonstration of Soviet power projection capabilities in the South China Sea. The exercise underscores Moscow's support for friendly regimes and its continued determination to conduct complex naval operations beyond the USSR's periphery.

These programmatic and operational developments clearly reflect the Soviet commitment to improving their already formidable maritime warfighting capabilities within an overall unified military strategy. The Soviets believe a war with the West would be decisive, global in scope, and probably escalate to nuclear conflict. Therefore, while naval forces are structured to fight in any environment, initial wartime operations would be conducted with a view toward escalation. Hence, the Soviet Navy is assigned two overarching, complementary missions to perform initially. The primary task is to deploy and protect the SSBN force. They believe that SLBMs, for the first time, give navies the capability to directly affect the course and even the outcome of a war. Because of the importance they ascribe to the SSBN force, the Soviets plan to support and protect it through an echeloned defense in depth. We believe that [deleted] would be committed initially to this mission and the overlapping task of defending the USSR and its allies from strikes by enemy sea-based nuclear weapons. To accomplish these tasks, the Soviets would attempt to control all or large portions of the Norwegian and Greenland Seas and the waters to the north as well as the Seas of Japan and Okhotsk and the area off the Kamchatka Peninsula. They would also conduct sea denial operations farther to sea—about [deleted] from the Soviet homeland. [Deleted] requirements—particularly the need to [deleted]—are expected to [deleted] the Soviets in the coming years to expand the areas in which their Navy would initially deploy the [deleted] for sea control/sea denial operations. The new, more capable platforms, sensors and weapons now entering service will thus help extend Moscow's critical defensive barriers—perhaps out another [deleted] or so seaward. We believe the aircraft carrier construction program, designed primarily to enable the Soviet fleet to operate better beyond the range of land based air cover, is but one indicator of this intent. The improved endurance, greater weapons capacity, long-range sensors, and comprehensive command, control and communications systems incorporated in new ships and submarines are another. The ongoing shift in submarine construction emphasis to nuclear powered attack units should provide modern, technologically advanced submarines in numbers sufficient to defend these expanded geographical areas.

Similarly, surveillance [deleted] improvements, continued upgrades in command and control systems, and [deleted] entering the fleet will not only enable the Soviet Navy to operate farther at sea for longer periods but will also [deleted]. The SSBN force, insulated by additional defensive barriers, should become less vulnerable in its bastions. The sea lanes between the US and many of our European and Asian allies will pass through more waters contested by Soviet naval forces, making resupply and support more difficult. In short, the expansion of Soviet sea control/denial areas will further complicate our wartime tasks. Additionally, the peacetime utility of the Soviet fleet of the 1990's will enhance Moscow's opportunities for spreading its influence and engaging in coercive diplomacy. The carrier now building—together with other force improvements—will give the Soviets early in the next decade a better capability to project power ashore against all but the most well-armed regional powers. Even under relatively benign circumstances, the potential political impact of a Soviet carrier battle group steaming in, say, the Arabian Sea is a disturbing prospect.

I have testified previously at some length on the erosion of our major offset to the Soviets' great numerical superiority in weapon systems—our technological edge. Moscow and its surrogates have long sought to close that gap by acquiring our technologies by every means available. Such acquisition is continuing and what was once a decade or more lead in nearly every important technology has diminished to [deleted] in most. In some, we have been surpassed. Espionage and clandestine commercial activities by the Soviets and their surrogates continue to be important means of acquiring our technology. A more insidious but equally important conduit is legally obtained information garnered from publicly available documents, purchase of turn-key production facilities, published articles, and readily available reports of tests and experiments. The Soviets apply technology acquired by these efforts to accelerate new military programs, particularly those in design and the early stages of development. Legally obtained technology has enabled the Soviets to—among other things—accelerate their space shuttle program [deleted]. [Deleted] make substantial progress in developing directed-energy weapons; fashion an aircraft carrier catapult system; save [deleted] in developing composite materials for military aircraft structural components; and establish the world's foremost capability to produce gun barrels. Moscow's commitment to military research and development is enormous. Our equipment and technology, however acquired, increase the efficiency of that effort by conserving time and money invested and reducing developmental risks. The Soviet Navy would be a far less formidable adversary today had not Western technology been judiciously applied since World War II in its development. Their warfighting capabilities now are such that we can no longer afford to be a silent partner to future acquisition programs. We, in cooperation with our allies, must frustrate Soviet access to our technologies to the maximum possible degree.

In addition to improving their own capabilities, the Soviets continued in 1984 to strengthen regional powers friendly to them through export of better than one-half million tons of modern military equipment. Major recipients were Cuba, Syria, Libya, India and Vietnam. Ethiopia, Algeria, Iraq, Angola and Nicaragua also received substantial arms shipments. The transfer of military weaponry to these regimes is a significant element in the overall Soviet effort to expand Moscow's influence in sensitive areas of the world and we expect the level of exports to increase. [Deleted]—the port from which Soviet arms are shipped—is in progress which could [deleted] this year.

Early in 1984, Cuba received its third *Foxtrot* class diesel powered submarine and its second *Koni* class frigate from the *Soviet* Union. Moscow's support for the Castro regime was further demonstrated last year by the twenty-third and twenty-fourth visits of Soviet naval task groups to the Caribbean. The former consisted of a

Moskva class ASW cruiser, an *Udaloy* class DDG, an oiler, and a *Foxtrot* class SS. This was the first deployment of a Soviet air-capable ship to the area. Joint naval exercises displayed an increasing Cuban capability, especially in antiship strike and underway replenishment. The twenty-fourth task group, consisting of the first *Sovremennyy* DDG to deploy to the area, two *Krivak* FFG's, an oiler, and a [deleted] arrived in the Caribbean in December and has conducted similar exercises with the Cubans. Cuba's three submarines, [deleted] missile armed patrol boats, and large Air Force, coupled with advancing operational proficiency, make Havana an increasingly credible threat to friendly forces and merchant shipping in the Caribbean.

Arms deliveries to Nicaragua accelerated in 1984 and included some naval [deleted]. The Soviets have been [deleted] deliveries to the Sandinistas [deleted] allies combined to lift [deleted] tons of military equipment to the Managua regime. The naval equipment acquired gives Nicaragua the [deleted].

Along the Mediterranean littoral, the Soviets were [deleted] in their support for friendly regimes. Libya acquired from the Soviets its [deleted] *Nanuchka* II missile-armed patrol boat and [deleted] *Natya* class minesweeper, along with about [deleted] of other military equipment. The Libyan Navy, with nearly 40 missile-armed surface units and six submarines, is becoming a viable naval threat in the Mediterranean. Such hardware in the hands of the unpredictable Qadhafi regime is particularly unsettling. For example, Tripoli was responsible for extending terrorism to the seas last year with the mining of the Red Sea. Eighteen ships subsequently were damaged in those waters last summer and a multi-national mine clearing effort was undertaken. The lone mine recovered was an export model of the [deleted] bottom influence mine. Markings on the mine indicate it was assembled about 1981, eliminating the possibility that it was emplaced during the 1973 Arab-Israeli conflict. The entire incident was [deleted] Military deliveries to Libya, however, have not slowed.

The Syrians received an additional *Polnocny* class amphibious landing ship and [deleted] OSA and [deleted] more *Zhuk* class patrol boats from their Soviet benefactors. More significant, deliveries from Moscow enabled Damascus to expand its land-based coastal defense antiship missile force. [deleted] missile systems—the [deleted] and [deleted] Syria. The [deleted] is a [deleted] missile with a [deleted] while the [deleted] has a [deleted]. These systems give Syria the capability to defend its ports and to threaten ships operating in the Eastern Mediterranean [deleted] have been [deleted] in the [deleted] and [deleted].

Although arms shipments to Ethiopia were substantial last year—about [deleted] tons—support to the Mengistu regime took another, more visible form.

[Deleted] in a KARA class cruiser, visited Massawa in February As did the deployment of the Soviet carrier *Novorossiysk* to Angola in 1983, the visit followed a period of increased challenges to the regime. Eritrean and Tigrean dissidents had been particularly active and cross-border incidents had heightened tensions along the frontier with Sudan. The visit served to demonstrate Moscow's firm and continuing support of Addis Ababa, highlighting one of the primary peacetime missions of the Soviet Navy—support of state interests.

I have earlier testified that the Soviets have supplanted Great Britain as the major supplier of India's naval weapons. Since then, the dimensions of that relationship have become clearer. In addition to *Kashin* class destroyers, *Nanuchka* class missile-equipped patrol boats, minesweepers and ASW aircraft already delivered, New Delhi reportedly will purchase from Moscow [deleted] large numbers of additional surface ships, [deleted] new submarines and new generations of ASW, reconnaissance and fighter aircraft. These acquisitions, augmenting India's indigenous construction program, will greatly increase New Delhi's margin of naval superiority over its littoral neighbors and could cause further tensions, particularly with Pakistan, in that unsettled region.

Deliveries to Vietnam remained substantial in 1984. Included in the nearly [deleted] tons of military equipment was a floating drydock capable of servicing Vietnam's Soviet-built *Petya* class corvettes and OSA guided missile patrol boats. A [deleted] *Petya* and [deleted] *Turya* class hydrofoil torpedo boats were delivered in 1984.

Elsewhere in the Pacific, North Korea's naval expansion program continues unabated. Pyongyang launched another *Romeo* SS last year, raising its submarine force level to [deleted]. Of note, [deleted] of those submarines have been [deleted] years. Developments at Nampo Shipyard indicate that construction of naval units has resumed there. [Deleted] patrol boats of [deleted] are under construction. Additionally, North Korea acquired the [deleted] giving it the ability to [deleted]. Operationally, a major North Korean training exercise took place last fall. Participants included [deleted] [deleted] and a variety of surface units. Sea-infiltration training occurred at [deleted] different locations. The size and scope of the exercise were unprecedented and vividly illustrated North Korea's advanced capability for amphibious raids against the South.

I've described the growing capabilities of Moscow's navy and those of some of its principal allies, surrogates and clients. To be sure, these are the most formidable threats we face at sea. As the Chief of Naval Operations stated in his recent testimony, however, the proliferation of other modern, high technology naval weaponry throughout the Third World is a matter of increasing concern both for its implications for regional stability and for the potential threat it also poses to our naval forces. Twenty years ago, modern naval weapons were concentrated in the arsenals of NATO and the Warsaw Pact. Only a few regional powers, such as Egypt, China and India, possessed antiship cruise missiles or operated relatively large submarine fleets. Today, the situation is radically different. Wide export of technologically sophisticated ASCMs—such as the [deleted] nm range French-made Exocet, the [deleted] nm Italian Otomat, Israel's [deleted] nm Gabriel, our own Harpoon, and a number of Soviet systems—has given more than 40 Third World nations a modern, antiship strike capability. Moreover, export of these missile systems has been complemented by sales of highly capable air and surface launch platforms and surveillance and targeting systems. As Argentina proved during the Falklands conflict and Iraq and Iran are demonstrating in the Persian Gulf today, these weapons give otherwise technologically and numerically inferior navies the capability to wage antiship warfare effectively. Similarly, worldwide sales of Soviet, Chinese, French, German, Dutch, and British submarines have further added to the naval capability of some 20 Third World nations. Libya's mining of the Red Sea and Iran's threats to turn our weapons against us are vivid reminders of how little control exporting nations have over the ways in which weapons they have supplied might ultimately be used. This proliferation of modern naval weaponry will not slacken in the years ahead. Current arms producers will continue to seek expanded markets and new exporters—such as [deleted]—will increase the competition.

Around the world, then, we see potentially hostile naval forces with an increasing capability to challenge selectively our vital maritime interests. In the future, as now, however, the Soviet Navy will present the most substantial challenge—one that will steadily grow. Over the next decade, the size of their modern SSBN force will remain roughly constant—between [deleted] units—but Delta and Typhoon units will comprise the great majority of that force; and the number of SLBM warheads will increase significantly because of the deployment of new MIRVed systems. The size of the general-purpose submarine force will decline slightly but the loss of numbers will be more than offset by the addition of far more capable units. By the early 1990's, moreover, about half the Soviet submarine inventory—some [deleted] units—will be nuclear powered and, if trends in sensors and quieting continue, should give Moscow additional flexibility in the employment of its overall submarine force in critical strategic offensive and defensive missions. Similar trends are evident in the enhanced combat capabilities of Soviet surface forces. The number of combat aircraft in SNA will grow substantially over the next decade and their performance characteristics will improve. These operating forces will be supported by well-developed space-based surveillance and [deleted] systems with greatly increased tactical utility and flexibility. The transition of the Soviet Navy from a short-war, limited endurance force to one capable of fighting over the long haul at greater distances in either a conventional or nuclear environment should be largely complete by 1995.

The Soviet Navy of the near future will also provide the Kremlin with a more effective instrument for expanding its influence and conducting coercive diplomacy in peacetime. Moscow will continue to probe for additional access to overseas facilities. Successes in this endeavor will enable the Soviets to more easily sustain distant naval deployments, place them within striking range of additional critical Western sea lanes and facilities, and create new opportunities to destabilize key nations in the Third World.

Moscow's commitment to achieving a true, blue water, balanced fleet, capable of challenging US maritime supremacy anywhere in the world remains firm. In the decade ahead, the Soviet Navy will be aggressively employed on a global scale to advance Moscow's interests. The challenge it will present to our position of world leadership is clear. I am certain we can and will successfully meet that challenge with your continued understanding and support.

Senator **Cohen**. Why don't we continue with the presentations. Admiral Baggett, why don't you proceed next.

STATEMENT OF VICE ADM. LEE BAGGETT, JR., USN, DIRECTOR OF NAVAL WARFARE

Admiral BAGGETT. Thank you, Mr. Chairman. It is a pleasure to be here this afternoon.

I have a prepared statement that I would like to submit for the record at this time. I would like to brief this subcommittee rather briefly—I understand the time constraints—on what our approach is to fighting to meet the threat which Admiral Butts has just described.

Basically, we are depending not on force levels but on the ability to fight smart in the event of hostilities with the Soviet Union.

They have a force that is well structured. It has been designed and tailored, primarily, for defense of the homeland and sea denial roles [deleted].

We certainly have to take advantages of their weaknesses and exploit those weaknesses.

We have touched a little bit this afternoon already on the threat with regard to their SSN capabilities. Their SSNs, as individual platforms, have vulnerabilities, in comparison with our submarine force, and with our ASW capability we can exploit those weaknesses.

The geography of the Soviet Union in terms of ports separates their forces. Their navy egresses through choke points, the limited areas. This certainly can work to our advantage if we take advantage of it.

CARRIER BATTLE FORCES

I want to talk just for a moment about our carrier battle forces and ships at sea in the context of correcting the idea that we are a battle force at sea that has the carrier in the middle like a bullseye with rings formed by the escorting surface ships.

Each of these small squares is 10 nautical miles. So this is a battle formation with two carriers, two SSNs in direct support of each of those carriers, with escort ships depicted in red the overall area is very large [250 by 250nm]. The maritime sea area that that force covers is some [deleted] square miles—a 250 by 250 area.

On a little more familiar scale, this is a battle force overlaid on the eastern seaboard of the United States for area comparison. The center of that battle force is Washington, with one of the carriers in Baltimore, and other would be at Richmond, VA. The surface ships deployed as Anti-Air-Warfare (AAW) ships would range from Philadelphia and Dover, DE, down to Norfolk, VA. The cap stations would be in Raleigh, all the way up to Pittsburgh, with cap coverage and intercept capabilities all the way from Albany, NY, through Knoxville, down into South Carolina, and a strike capability out to about miles from St. Louis, Chicago, and Atlanta.

This is just to give you an idea of the smallness of the ships on the vastness of open ocean areas and to also magnitude of our dispersed formations. We are capable of bringing into a warfare environment.

WARFARE TASKS

PRIMARY	ANCILLARY
● STRIKE AND ANTI-SHIP WARFARE	● ELECTRONIC WARFARE
● ANTI-AIR WARFARE	● COVER AND DECEPTION
● ANTI-SUBMARINE WARFARE	● TACTICAL INTELLIGENCE SUPPORT
● AMPHIBIOUS WARFARE	● COMMAND AND CONTROL
● MINE WARFARE	● SURVEILLANCE

The warfare tasks of the Navy are depicted here for ease of discussion. The primary mission areas are not superior to the ancillary ones. The ancillary mission areas that I have depicted on the slide are in no way subordinate to those primary mission areas shown on the left.

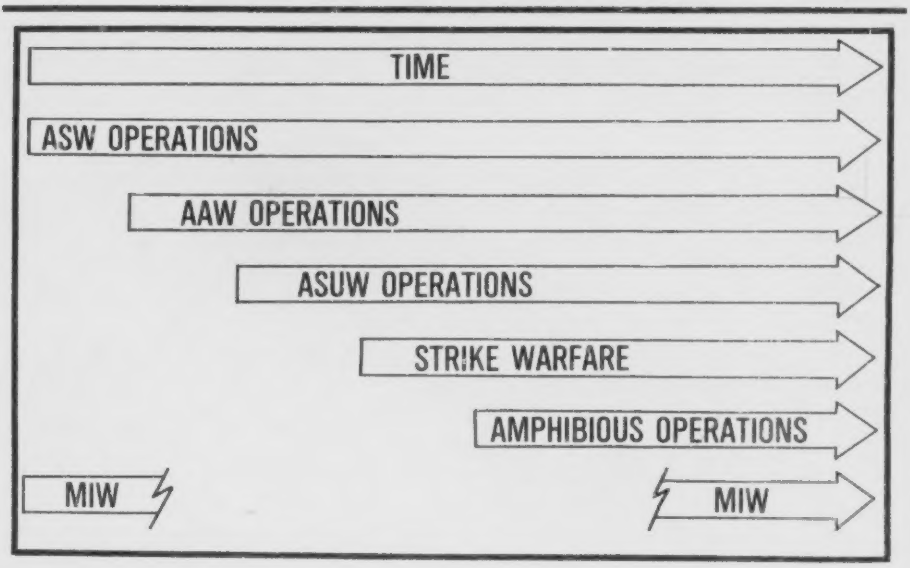
Rather, the ancillary mission areas permeate the entire warfare environment cutting across all of those warfare tasks.

The best way to explain it I think is for example, in electronic warfare, you have to be able to fight in an electronic warfare environment that is dense, just as you have to be able to fight in sleet, rain, or weather conditions that affect these mission areas.

Senator COHEN. You don't mention chemical up there.

Admiral BAGGETT. I will touch on chemical. I did not specifically call it out, nor did I mention tactical nuclear weapons. But I will, in this presentation, talk on chemical warfare.

MISSIONS OVER TIME



The point of this slide is that antisubmarine warfare operations really start at the sea buoy.

That is the only warfare area that truly faces a threat from the moment the ships go to sea. The commander at sea, who has any of these other missions on his mind, constantly has to be aware of the submarine threat and the antisubmarine warfare problem.

That is not to overly highlight antisubmarine warfare, but it is to make the point that it is not elective. It is mandatory, regardless of what the Commander's mission is.

Admiral Butts in his presentation talked about the Soviet quieting trend.

This is perhaps an overly simplistic, but accurate, depiction of a comparison of our SSNs, the current 688's, versus the existing Sierra class, and projected against the threat of the 1990s that we see and project for the Soviets, and the year 2000 threat that we see and project for the Soviets.

This column [indicating] shows the U.S. detection ranges. For example, the SSN-688 class, the current SSN in the fleet, would be able to detect the Sierra at [deleted] in the Norwegian Sea, in that environment, and the Soviet detection range would be [deleted]. So the advantage is [deleted].

He gets quieter. [Deleted] he gets quieter and decreases our accoustic ability to hear him first.

The SSN-21, which is planned for an fiscal year 1989 start, restores that balance in favor of the United States Navy. As you can see from these figures against the current Sierra, [deleted]. It restores the tactical advantage to our submarines.

Senator Cohen. What speed do you use in that chart?

Admiral **Baggett**. I used [deleted]—on the basis that a [deleted] is required to maintain a real tactical advantage in an SSN versus SSN encounter.

Again, I highlight the fact that this is really based on a specific acoustic environment—in this case, bottom limited—in other words, there is no convergence zone capability; the accoustic paths intersect the bottom before they curve back up. So this is a direct path bottom limited environment.

Senator **Glenn**. Would you say that again? I am surprised at the ranges. I did not realize they were going to come up [deleted].

Admiral **Baggett**. What I was saying is this is a direct path, East Norwegian Sea, bottom limited, we were not getting a convergence zone, Senator.

Senator **Glenn**. How common is this situation?

Admiral **Baggett**. It is a representative situation, the East Norwegian Sea or the North Atlantic. It is a favorable environment. You would not get that off San Diego, California, which is abominable in terms of acoustic conditions.

Those would be representative of the Northern Pacific waters, also.

But the specific figures, as I said, are for East Norwegian Sea, median detection ranges.

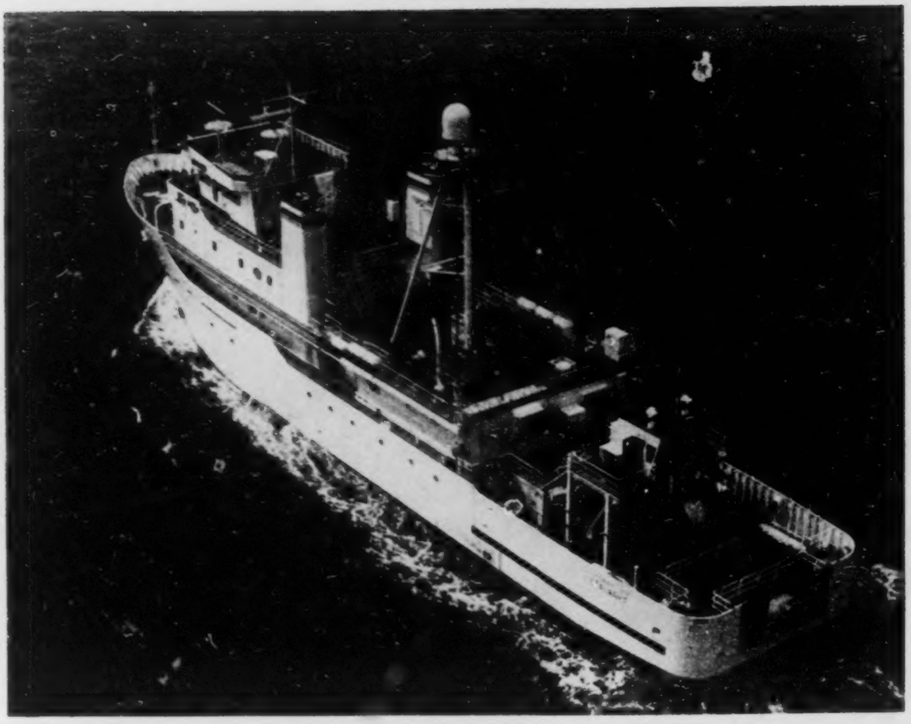
Before I go to the next area, I want to emphasize the importance of quietness. The projected SSN-21 [deleted]. It is a significant quieting effect. That is where the tactical advantage comes. It is noise reduction on their part as well as sensor enhancement on the Soviets' part that is of concern.

QUALITY VERSUS QUANTITY

In terms of quality versus quantity, the force levels of the Soviets are, we project, going to remain essentially constant. As you can see from this ordinate (indicating) about [deleted].

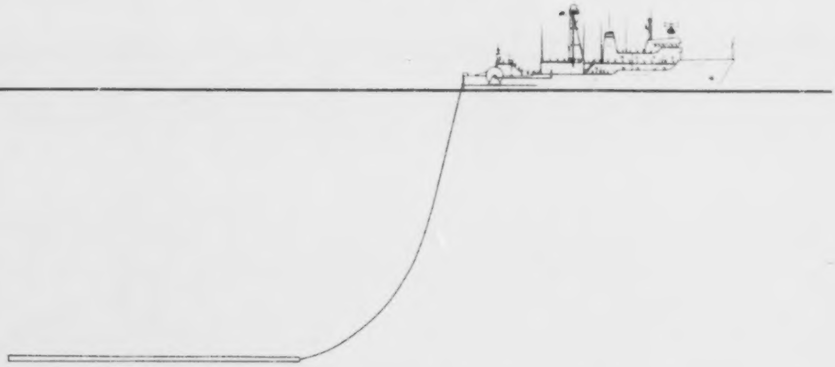
The important point is the newness of their submarines between now and the timeframe shown here out to the year 2010.

By the year 2000, we are projecting that more than half of their submarine force will be post-1984 vintage submarines. That is based on their introduction of [deleted] new classes between now and the turn of the century, the same time period in which we will introduce a single new class, the SSN-21 class.



One new force level that we have in anti-submarine warfare, that I wanted to mention to this subcommittee, because they are performing with distinction right now, are the Tagos Surtass ships that have been put into service within the last year. We now have one in the Atlantic and one in the Pacific. The *Stalwart* in the Atlantic has performed as well as the *Contender* in the Pacific, about which I will talk about in a moment.

TAGOS SURTASS



This is an MSC manned ship that tows an acoustic array that is some 8,575 feet is length. It tows it at depths that are convenient to whatever the environment is. Depths typically range from 500 feet to 1,500 feet.

This is *Contender,* the second one of the Surtass class, and the results of her performance in the short period since her certification trials in December. You can see her performance [deleted] which are significant. These ships add greatly to our surveillance coverage.

[Deleted.]

[Deleted.] The point is Surveillance Towed Array Sensor (Surtass) has just come into the fleet. We have accepted two additional ones, one going to the Pacific and one to the Atlantic. These latter two are not at sea yet. They are in outfitting. Surtass is proving to be a big lever in terms of tactical ASW surveillance capabilities.

ANTI-AIR WARFARE

Turning next to anti-air warfare, this slide illustrates the total spectrum of anti-air warfare, starting with indications and warning over an enemy base complex, to long-range intercept and surveillance, to a counter-platform anti-air warfare strategy, that is combined with a counter-missile capability.

Everyone of those elements is equally critical to conducting anti-air warfare.

[Deleted.] If we are not in a counter platform strategy back stopped with a counter missile strategy to cope with leakers, we are going to be faced with Backfires, for example, coming out the next morning with a fresh load of AS-4s. Eventually we are going to be magazine limited.

We have addressed that, as we briefed this subcommittee previously, in the Outer Air Battle Study. We are now in the [deleted] outer air battle missile that would give us the range and the capability to get out beyond the current range of the Standard Missile-

2, and take [deleted] the Backfires and the escorting jammers. We want to get the "archer" and not have to wait and shoot down "arrows" after they have been fired at us.

This is another depiction, of the importance of surveillance, and indications and warning that allow you to marshall your forces by extending the battle space outward. It allows you to get your deck launched interceptors off the carriers and airborne, as well as having your cap properly postured on the a threat axis to most effectively cope with that threat.

OVER-THE-HORIZON RADAR

Part of our wide area surveillance also is relocatable over-the-horizon radar.

This high frequency radar has ranges out to [deleted]. This is a fan coverage depiction in the Northwest Pacific, which shows what the coverage would be from [deleted] up in the right-hand upper half of the chart (indicating). A similar sector from Guam is shown. The first prototype testing is planed in the northern latitudes out [deleted]. That will add greatly to our surveillance capability in the North Pacific.

Another aspect of battle space management is shown here. The surveillance extends the battle space out. Counter targeting extends battle space in by making come in closer to conduct targeting and define targets.

This is a B-52 bomber radar scope photograph. [Deleted.]

Here is the USS *America*. Each of these range rings is [deleted]. So *America* is out at about [deleted].

This next viewgraph will show what counter targeting can do in that ballgame.

This is EA-6B jamming from an aircraft, combined with SLQ-32 jamming from the USS *Virginia*, which is a nuclear powered cruiser. The *America* actually is out here now (indicating), off the scope in this particular photograph.

These are deception units created by airborne and ship laid chaff. It is important to recognize, I think, that by making the enemy come in closer to actually discern where the target is—and I defy the radar operator in this case to find the *America*—you can see the battle space extention for our forces works greatly to our advantage.

Off-board decoys have an important role in that counter targeting.

TACTICS

With regard to tactics, not to just harp on hardware, I would like to mention one tactic that we have initiated, thanks to the efforts of the fighter community out at Miramar.

[Deleted].

I would like to mention one other subject with regard to AAW and that is the importance of the nuclear Standard Missile, SM-2(N). [Deleted.]

In this particular case, [deleted].

If out [deleted] we get an airframe kill with the conventional SM-2 missile. [Deleted] remote from the force being protected.

Inside [deleted] though, we say that regardless of an airframe kill, you are going to have that warhead tumbling down [deleted]. Depending on the severity of the airframe kill, it either tumbles down [deleted] short or [deleted] long, of the ship being protected [deleted.]

We are talking not about a large yield weapon for the SM-2(N). We are talking about a Standard Missile nuclear capability [deleted].

In either case, the kill mechanism would be against Soviet nuclear weapon [deleted].

Really, more than a war-fighting capability, the SM-2(N) provides a deterrent capability that prevents the Soviets from feeling that escalation [deleted] at sea would be to their advantage.

[Chart deleted.]

I will just touch briefly on the Aegis and the CG-47 class cruiser and will not elaborate on it except to say that Aegis has been a superb performer. Off Lebanon, it maintained an air picture that was second to none. It performed well last summer in its OPEVAL [Operational Evaluation]. I think this subcommittee is well aware of the attributes of the Aegis system. The CG-47 in particular is the keystone in maintaining our air picture, both over the beach and in a pure at-sea environment.

This is the *Ticonderoga,* lead ship of the class.

Senator **Cohen**. My understanding is that the Japanese are trying to get access to the Aegis technology.

Admiral **Baggett**. Yes, sir, that is my understanding. But they have not approached me.

Senator **Cohen**. I understand that. But they have approached us. Does that pose any problem in technology transfer?

Admiral **Baggett**. Yes, sir, it would involve that. It would have to go through a severe review process within the Navy, within the uniformed Navy, and again at the Secretariat level, to the Foreign Disclosure Review Board. Approval at each step would be required for such a sale to occur.

It would involve a technology transfer, including the manufacturing process of the system itself, in that phased array radar.

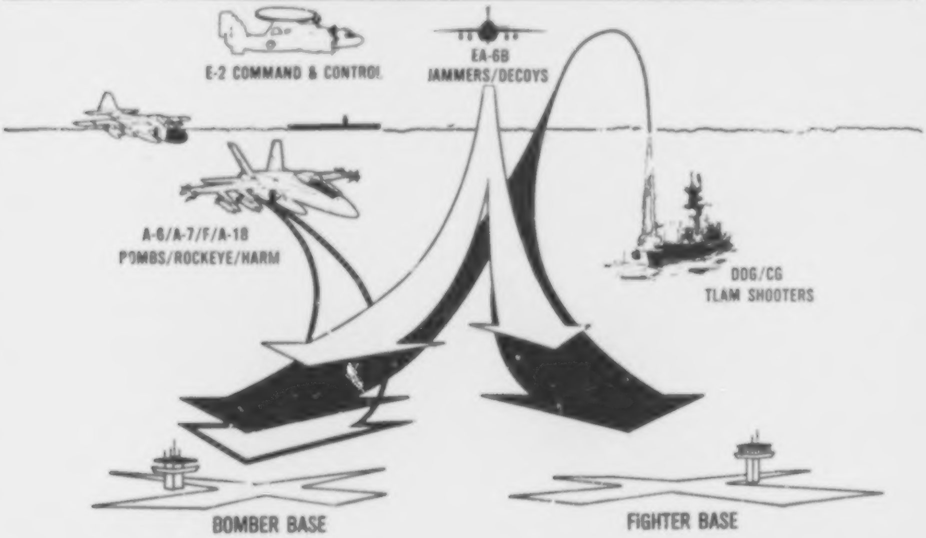
[Chart deleted.]

Closer in, in AAW, the Vulcan-Phalanx system shown here was installed on the ex-USS *Stoddard* to conduct firing tests against one of the missiles. Admiral Butts mentioned earlier some 40 Third World countries have anti-ship cruise missiles. This was a test firing against [deleted]. We are planning right now to ultimately install 500 of those systems. [Deleted] systems are now operational in [deleted] ships.

That is the [deleted] blowing up in that firing test. We tested the system realistically, we feel as realistically as we could, without actually having an [deleted], fly directly at one of our manned ships. The [deleted], in this particular case, was fired upon by the CIWS system, which was mounted in a ship which is no longer in commission and was remotely controlled.

This is a depiction, of the combined arms nature of strike warfare. A multiplatform capability is needed to conduct meaningful strike warfare. With the introduction of Tomahawk and, specifically, the TLAM/C, we not only have the capability to conduct strikes

COMBINED ARMS STRIKE MISSION



with Tomahawk alone, but conduct coordinated strikes from many more platforms than just the carriers themselves. Combining Tomahawk with coordinated manned aircraft strikes offers a great advantage in countering whatever the threat may be, whether it be sea-based strikes against targets at sea or target complexes ashore. One obvious advantage is that TLAM/C does not result in any POWs or KIAs. It is a very effective weapon system—one that will eventually be installed in [deleted] surface ships and [deleted] submarines.

This shows Tomahawk approaching what was an old water tank on San Clemente island that was built up for this test by putting a reinforced concrete roof on it. It also has reinforced concrete walls. It closely replicates a Soviet antiship missile preparation facility, if you will.

This Tomahawk had flown 425 miles in 58 minutes, was launched from a submarine, and this is its approach to the blockhouse.

[Chart deleted.]

This shows Tomahawk starting to penetrate.

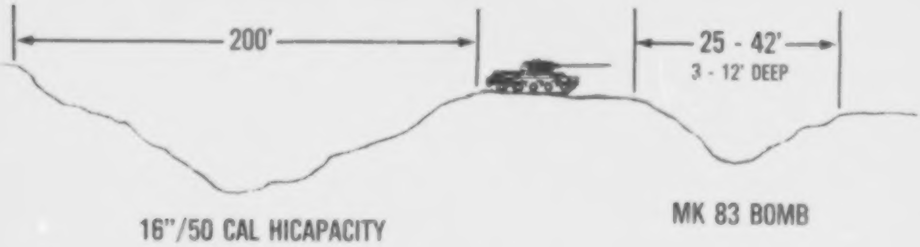
Those are the initial effects of the warhead.

In this final picture, without going any further, each of these slabs of [deleted] reinforced concrete [deleted]. That is a very effective weapon. This short series of photographs I believe shows that.

[Chart deleted.]

Here is a Tomahawk being launched from the *New Jersey*, which carries 32 of these and 16 Harpoons in addition to Tomahawk.

This is the battleship itself, with its 16 inch guns. It is one of the most capable platforms in the world, regardless of the Tomahawk or Harpoon additions. It gives us a capability at sea that reduces some of the operational requirements levied on the carrier battle groups, by substituting battleship surface action groups.



This is a 2,000 pound, 16-inch high capacity projectile's damage radius—200 feet in diameter, compared to a Mark 83, a 1,000 pound bomb, crater.

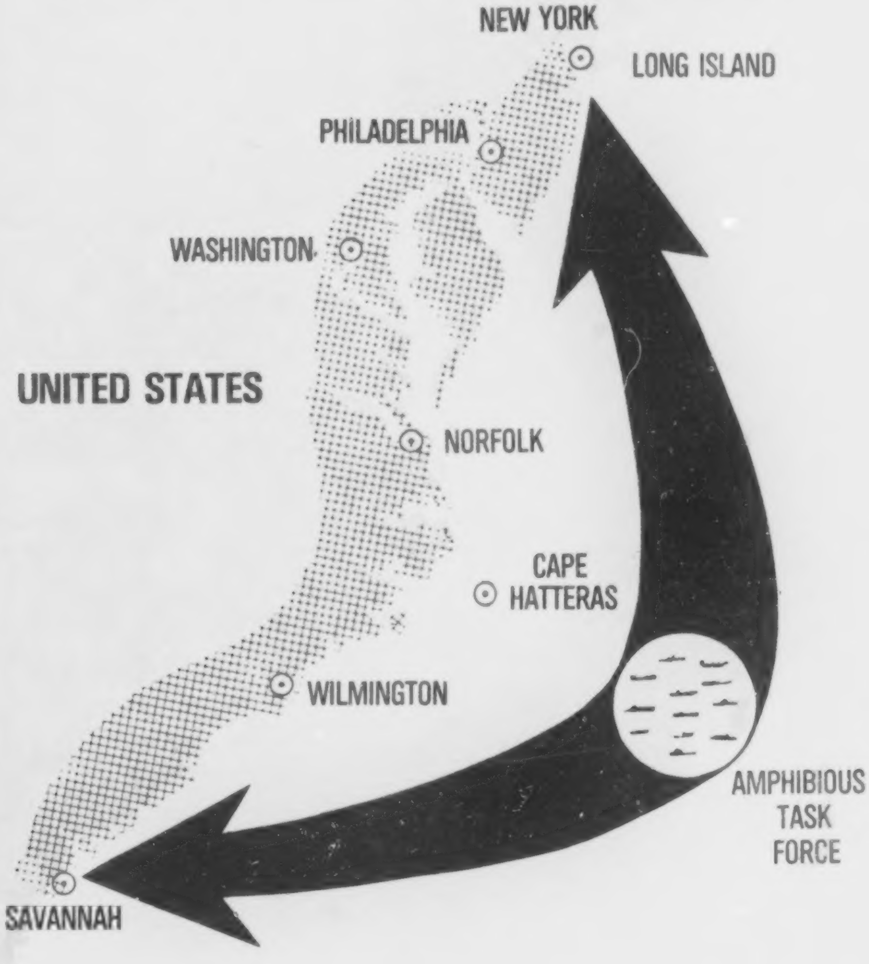
The damage level is significant.

U.S. NAVY
LCAC-1

AMPHIBIOUS WARFARE

Turning now, briefly, to amphibious warfare, which has its applications in contingency operations anywhere we might be called upon to operate. This is the landing craft air cushion vehicle, which has a 60-ton load capability. When coupled with the V-22A (formerly JVX) and the CH-53 helicopter, it is the keystone of over the horizon amphibious warfare planning.

Over the horizon amphibious operations can be illustrated here [indicating]. For example at noon today, if we had an amphibious task force operating off Cape Hatteras, by tomorrow at dawn that force could land anywhere from Savannah, GA, to New York City, and get the Marines ashore within 90 minutes.


NEW YORK
LONG ISLAND
PHILADELPHIA
WASHINGTON
UNITED STATES
NORFOLK
CAPE HATTERAS
WILMINGTON
AMPHIBIOUS TASK FORCE
SAVANNAH

In another context, in another illustrative geographical area, even if the enemy knew that the attack was being launched at dawn and saw the LCACs, the helicopters, the JVX leaving the amphibious ships, the envelopment, the assault, could occur anywhere between New London and New Bedford, MA. The over the horizon capability of the amphibious force is going to be a significant factor in whatever spectrum or whatever level of warfare we operate.

This is so whether it is a contingency operation or a worldwide conflict. We will first have this Marine amphibious brigade over the horizon capability in fiscal year 1988 for a single MAB; in [deleted] a second Marine amphibious brigade capability; and, finally, a total three MAB capability in [deleted].

MINE WARFARE

You mentioned chemical warfare, Mr. Chairman, and I will get to that in one moment. But before I do, I would like to touch on mine warfare and the importance of mine warfare and adaptability of mine warfare to Third World or terrorist situations.

This just indicates the mine threat that was posed last year in the Red Sea and the Gulf of Suez. Our mine countermeasures capability was responsive. Our [deleted] mine-sweeping helicopters were deployed and being in operation 3 weeks after the request was made for assistance. Of course, it was an international effort with the Netherlands, Italy, France, and Great Britain also contributing to this mine clearance operation.

It highlights how terrorists or mischiefmakers could interfere with international commerce.

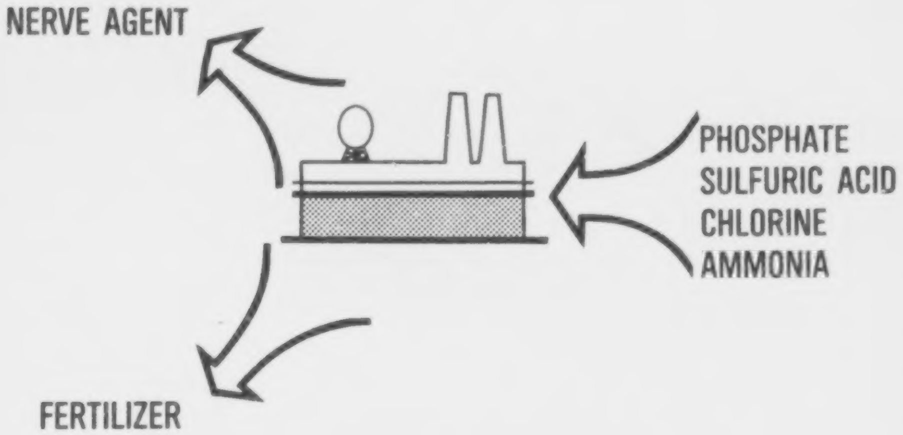
Senator COHEN. Was this the Libyan ship?

Admiral BAGGETT. This was a Libyan ship, all indicators point to that. I think a reasonable jury could be convinced.

We have proven it to our satisfaction—haven't we, John?

Admiral BUTTS. Yes, sir. Clearly, the *Ghat* was the ship.

WEAPONS FROM FERTILIZER



CHEMICAL WARFARE

Admiral BAGGETT. Finally we come to chemical warfare.

The [deleted] countries shown here are those countries which right now have a chemical warfare capability. That chemical warfare capability is capable of growing rapidly, simply because of the ease with which nerve gas and other chemical agents can be generated, using the same chemicals that are used for fertilizer. It can be done efficiently, it can be done inexpensively, it can be done effectively, and it is being done right now, today.

From a Soviet chemical warfare standpoint, this is a picture of a [deleted] chemical warfare plant. It has been in existence since World War II and has been producing chemical agents at least since World War II. It is one of [deleted] chemical warfare production plants the Soviets have.

[Deleted] that plant has expanded in size and the density of the buildings, the manufacturing capabilities, the storage tanks have all vastly improved.

Compared to that, we have one partial chemical warfare plant, which is really not capable of production now without extensive renovation and rework.

Senator COHEN. We have a lot of fertilizer plants, don't we?

Admiral BAGGETT. Yes, sir.

CHEMICAL WARFARE INVENTORY

This is our current chemical warfare inventory: 888 Weteye bombs and these Mark 80 series bomb cases that are filled with a nerve agent, together with these are Aero 14B crop dusting type spray devices mounted on A-4 aircraft. We have no credible deterrent or retaliatory capability. Every one of these is unsafe to put in a ship. If we were going to use any of them, we would have to use Marine aviation units ashore or else put naval tactical aircraft ashore to help the Marine Corps make deliveries.

These are all unitary weapons. They are lethal if their cases rupture or leak.

The Bigeye, on the other hand, is a binary weapon that the Navy is responsible for developing. Because the agents of Bigeye do not mix and become lethal until launch, it is, of course, safe for transport, safe for storage, safe for employment. That makes Bigeye far more effective and safe than the old unitary weapons, which are no longer even available for ship employment.

Here, again, the point is if we do not have a capability in chemical warfare that gives us a capability to respond, we are inviting escalation to chemical warfare on the part of almost anyone who chooses to do so.

So, Bigeye is a deterrent weapon, one that is needed to give us the capability to deter chemical warfare.

DEFENSE AGAINST CHEMICALS

On a defensive point, these are Mark III chemical warfare suits that have come into the Navy in the last 2 years. They are being delivered to the fleet, first to the amphibious units. These are charcoal impregnated. They are much more effective than the old "raingear", as I like to call them, chemical warfare suits we had in the past.

Nonetheless, after a short time in these suits, you really are debilitated. You cannot function militarily. Anyone who has tried to operate a fire control system while in a chemical warfare suit knows how difficult it is and how exhausted you become in a very short time.

Our new construction ships are having built into them a collective protection system, which will provide a haven that [deleted] the crew can use to eat, to change clothing, to change masks, to shower, to decontaminate. These CPS Citadel systems are also being looked at by the Navy in terms of a backfit program, but we have not really scoped the full plan yet.

But it is a requirement for all of the new combatant ships that we have in the SCN request.

Finally, let me say just a few words on terrorism and what our posture is to make clear the fact that we are intent on not taking the first blow from terrorists.

We have done these things to indicate to the international community that if they are going to close our ships within 5 nautical miles, or within 2,000 feet in the case of aircraft, they must communicate intentions first or they put themselves in jeopardy.

USN POSTURE FOR TERRORISTS THREATS

- OVERRIDING CONCERN
    - AVOID A FIRST BLOW BY TERRORISTS ON OUR NAVAL FORCES
- ANNOUNCEMENT TO INTERNATIONAL COMMUNITY
    - NOTICE TO AIRMEN AND HYDROLANT/PAC
    - REQUEST FORCES CLOSING U.S. UNITS TO COMMUNICATE

      + 2000 FT/ 5 NM
    - U.S. TAKING ENHANCED DEFENSIVE MEASURES

We have published this announcement in a Notice to Airmen, and in Hydrolant and Hydropac notifications to the international community. We have taken every necessary defensive action we feel we can take.

RULES OF ENGAGEMENT

- DEFENSIVE - BASED ON NEED/PROPORTIONALITY
- WARNING BY ALL MEANS AVAILABLE
- ALL MEASURES NECESSARY TO PROTECT UNIT IF WARNING FAILS
- RESPONSIBILITY RESTS WITH CO

The rules of engagement are based on normal peacetime ones and are clearly understood by people in the fleet. It is defensive. It is based on an action that is forceful only in proportion to what the threat is to the U.S. unit. The rules of engagement require that whoever is closing a U.S. Navy unit be warned by all means available, including gunfire, flares, whatever means necessary, to indicate they are standing in danger. Commanding officers are authorized to use all measures necessary to protect their own units, should those warnings fail. In the final analysis, there is one person responsible, and that is the commanding officer of the unit.

Senator COHEN. What did you do in Beirut with respect to the rules of engagement there?

Admiral BAGGETT. These were the rules, the warning system.

Senator COHEN. In the 5 nautical mile range?

Admiral BAGGETT. Yes, sir. And we fired on occasion.

Senator COHEN. Did you hit anybody?

Admiral BAGGETT. No. We fired warning shots. We fired with gunfire; we fired with flares. We have those same rules in the Persian Gulf.

As I said, in the final analysis, the CO is responsible, but believe me, the COs know by hard copy message and directives that they have in writing the support of all the Commanders in the entire chain of command is with him. If he acts under these rules of engagement, protects his command if warning fails, everybody is four square behind the CO.

That concludes my briefing, Senator, subject to your questions.

[The prepared statement of Admiral Baggett follows:]

PREPARED STATEMENT OF VICE ADM. LEE BAGGETT, JR., U.S. NAVY, DIRECTOR OF NAVAL WARFARE

Mr. Chairman and distinguished subcommittee members. I am Vice Admiral Lee Baggett, Director of Naval Warfare. I appreciate the opportunity to update you on our Navy's warfighting capability.

Rear Admiral Butts has provided you with a comprehensive overview of the maritime threat we face today—from both the Soviets and the increasingly sophisticated weapons in the hands of Third World countries.

As Director of Naval Warfare it is my responsibility to ensure that requirements are clearly defined and our naval capabilities keep pace with the threat. My objective is to ensure the Navy is capable of responding to all threats to our national interests, both present and future. These threats range from terrorist attacks on our sailors/marines and ships to the Soviet Navy in global war.

This is a familiar role for the Navy. We are accustomed to responding to a wide range of taskings and situations. Since 1945 our national leadership has dispatched naval task forces and Battle Groups as instruments of crisis management more than 200 times. During the past 2 years alone, naval forces were used at least six times as part of the national response to crises, most recently in Lebanon, Grenada and the Red Sea/Suez Canal area. To put this in context, the use of force short of war in the period 1945–82 has involved naval forces 80 percent of the time. This is not surprising since ships are mobile and less intrusive than other military forces.

Because of our forward deployed posture, mobility and warfighting capability at any level of conflict, the Navy continues to be the service of choice to demonstrate resolve or protect our national interests.

The multi-dimensional nature of the threat—on, under and over the sea, as well as from land—requires naval forces to possess a full range of offensive and defensive capabilities. Although deterrence is our principal objective, should that fail, it is essential that naval forces have a credible warfighting capability at each level of conflict.

Naval forces provide escalation control, which is essential to crisis control, because they are capable of dealing with and responding to threats with a range of options from peacetime presence to nuclear war. Because naval forces have, over the years, been constantly in the van of national crisis response, we in the requirements business have been insistent that our warfighting capability should be balanced and capable across the entire spectrum of conflict.

To deal sensibly with the unique multi-dimensional nature of war at sea we have divided naval warfare into its various major components: Anti-Air Warfare (AAW), Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASUW), Strike Warfare, Amphibious Warfare, Electronic Warfare (EW), Mine Warfare, and Tactical Nuclear and Chemical Warfare (TNW/CW).

With the exception of TNW/CW, each of these warfare areas has a concept that, in general, is based upon offensive action at the appointed time aimed at destroying or countering enemy forces before they are in a position to deliver their weapons. This offensive focus is not the result of a misplaced sense of bravado, but rather is founded upon the common sense notion that it is easier to neutralize the archer than it is to shoot at his arrows. We believe that when faced with aggression the best defense is a strong offense.

ANTI-SUBMARINE WARFARE (ASW)

One of our principal missions in war (especially in Europe) is protection of the sea lines of communication, or SLOCs, which tie us to our allies, U.S. forces overseas, and many of the resources essential to our economy. We have determined [deleted] that the best protection for the SLOCs is to operate our forces so as to keep the Soviets engaged in defending rather than attacking. We want them to react to us—not the other way around. [Deleted.]

The reasons the Soviets must devote the bulk of their fleet to the defensive is simple—the qualitative superiority of our tactical forces, particularly our Battle Groups and attack submarines, forces them to do so. Our allies also contribute to the Soviet's defensive outlook. [Deleted.]

Maintaining our qualitative edge in ASW is a warfighting priority. My major warfighting concern is that the Soviets [deleted] continue to modernize their undersea fleet at an unprecedented pace. [Deleted.]

Our approach to maintaining advantage is one of balance. We have a superb passive capability today [deleted]. This capability, along with planned improvements, will remain effective against [deleted] [deleted] of the Soviet submarine force in the year 2000. In particular, previously planned improvements to our P–3 and S–3 ASW aircraft and SQR-19 towed arrays will maximize the effectiveness of those essential systems. Planned improvements to the SSN 688 class submarine will ensure that our submarine force [deleted] acoustic advantage is absolutely essential to successful ASW. This translates to hearing the enemy first; and hearing first allows you to shoot first. [Deleted] shooting first is the difference between winning or losing.

To keep pace with Soviet submarine quieting trends, we have accelerated development of sonars. [Deleted.] The FY-86 budget includes funds required to complete development of a helicopter to replace the aging SH-3 helicopter now in our carriers. This will be a derivative of the existing SH-60 helicopter now in production.

The effectiveness of our newest systems was demonstrated during the certification trials and initial patrols of our Military Sealift Command operated T-AGOS or SURTASS towed array ships. [Deleted] met all certification requirements [deleted.]

ANTI-AIR WARFARE (AAW)

In Anti-Air Warfare our warfighting concept is also offensive. The principal threat is from anti-ship cruise missiles—Soviet and Third World. These missiles, launched from submarines, surface ships, and aircraft employ a variety of profiles—high altitude, supersonic, terminal diving [deleted] long range, terminal low altitude [deleted] and short-range, sea skimming [deleted.]

Our approach to the AAW problem is to divide it into two areas: Counter-platform, which is destruction of enemy launch platforms before they can locate and target our forces and launch their missiles, and Counter-missile, which is destruction of cruise missiles that are successfully launched and "leak" through our counter-platform forces. While a strong capability is required in both areas, counter-platform attrition is essential to break up an air attack far from our forces and prevent saturation of our missile defenses. Counter-platform attrition is included in Strike Warfare attacks against enemy bases, preventing their aircraft from leaving the ground.

Early warning and long range surveillance of potential attacks are critical to our success in the AAW problem. We use this information to posture our maritime forces optimally for defeating the attack, to position our carrier-based early warning aircraft (E-2Cs) and interceptors (F-14s, F/A-18s) to engage attacking platforms at long range and to initiate electronic warfare deceptive measures to disrupt and confuse the attack and deny it information about our forces. [Deleted.]

Our outer air battle and counter-platform capabilities have steadily improved over the past four years as we build up our inventories of F-14 aircraft and introduce the F/A-18 into the fleet. In addition, we have steadily improved our sustainability base of air-to-air weapons—Phoenix, Sparrow, and Sidewinder missiles—and we have a strong tactical development program in progress. In 1986 we will continue the momentum of past years with the procurement of 6 E-2C, 18 F-14A, and 84 F/A-18 aircraft. In addition, we will continue procurement of air-to-air missiles to build up our sustainability base.

Our counter-missile capabilities also are steadily improving with the introduction of the Aegis weapons system equipped *Ticonderoga* class (CG-47) cruisers into the fleet, improvement of close-in defense capabilities through the accelerated introduction of the Phalanx close-in-weapon system (CIWS) and an electronic warfare terminal defense, and the introduction of the [deleted] of the Standard missile. In addition we have, through strong support by the Congress, built up our inventory of surface-to-air missiles.

The capability of Aegis was recently demonstrated off the coast of Lebanon. *Ticonderoga* was able to provide a complete and comprehensive air picture of unprecedented quality. This allowed Commander Task Force 60 to reduce the Combat Air Patrol requirement to launch fighters to investigate unidentified air contacts, thereby accruing a significant savings in aviation fuel. The terrorist threat to our forces posed by suicide aircraft was reduced because of the coherent air picture provided by Aegis. In addition, the recent Follow-on Test and Evaluation conducted by *Ticonderoga* demonstrates Aegis' capability against realistic threats in both clear and jamming environments and against single and multiple targets. In this year's ship construction (SCN) plan, we are requesting three more *Ticonderoga* class cruisers.

ANTI-SURFACE WARFARE (ASUW)

Anti-Surface Warfare, simply stated, is the business of sinking ships. It is naval warfare in the classic sense. We are very good at that today and have plans to maintain a strong three dimensional capability. Our approach to ASUW is to use the capability of each element of the Battle Group—aircraft, surface ship, and submarine—to its maximum advantage.

To counter our capability to deliver tactical air strikes against their ships, Soviet shipboard defenses are growing in range, firepower and sophistication. Our ability to suppress and penetrate these defenses is also keeping pace. Stand-off weapons such as Harpoon, Anti-Ship Tomahawk (TASM), Maverick and Harm will allow us to remain outside of Soviet weapons reach and strip away or suppress defenses. We can then sink enemy ships with very low tactical aircraft attrition.

Submarines are also extremely effective ship killers, and because of [deleted] the MK 48/ADCAP torpedo [deleted] over the present MK 48 MOD 4 against surface targets.

Over the horizon targeting (OTH-T) for our long range Tomahawk cruise missiles is another essential aspect of our ability to sink ships. We have a good capability today [deleted]—using aircraft to target the enemy. However, this entails risk to the aircraft which may have to penetrate inside enemy defenses to positively identify targets. To reduce this risk we are improving communications connectivity [deleted] along with our shore based processing capability, so that information [deleted] [deleted] can be provided to surface ships and submarine Tomahawk shooters in near real-time. Command, Control, and Communications (C^3) programs such as the Ocean Surveillance Information System (OSIS) baseline upgrade, which will improve information processing, and communications networks, are necessary for effective near real time OTH-T. In fact, C^3 programs are essential to all warfare areas.

This ability to target over the horizon, or beyond the enemy's weapon reach, is not only applicable to engagements with the Soviet Navy but also in the context of any war at sea. This recognizes the proliferation of high technology weapons—particularly cruise missiles—among Third World countries. As we are seeing routinely in the Persian Gulf a single cruise missile hit is not necessarily fatal to a ship. However, the political impact of such a successful attack on one of our own warships would probably far outweigh the loss of warfighting capabilities. We have accelerated the installation of the close-in-weapons system Phalanx, and are instituting fixes [deleted] to keep pace with this Third World cruise missile threat. In the future the Rolling Airframe Missile (RAM) will add another dimension to our close-in firepower.

Sinking ships is but one aspect of our mission, the other is power projection. Power projection is the ability to attack enemy forces that are ashore. It is composed of two warfare areas: Strike Warfare and Amphibious Warfare.

STRIKE WARFARE

The basic striking force of the Navy is the Carrier Battle Group (CVBG) which consists of the air-wing on a carrier (CV) and accompanying warships—surface combatants, submarines and replenishment ships. In peacetime a typical CVBG would consist of: [Deleted] CV/CVN; [deleted] cruisers; [deleted] guided missile destroyers; and [deleted] ASW destroyers; [deleted] attack submarines; and [deleted] multiple product replenishment ships.

[DELETED] ATTACK SUBMARINES

[DELETED] MULTIPLE PRODUCT REPLENISHMENT SHIP

The striking power of the CVBG is today embodied in the air wing. We are in the process of transitioning to [deleted].

As one would expect, the concept for Strike Warfare parallels the approach to sinking ships. Strike Warfare requires integrated operations, the blending of anti-radiation missiles [deleted] stand-off missiles [deleted], and saturation decoys and jamming to penetrate air defenses with minimal TACAIR attrition. [Deleted.]

A linchpin of our strike capability is the A-6 aircraft. It provides a sea-based, long range all-weather attack capability that is unique. No navy in the world can conduct strikes at the ranges and in the weather conditions that are possible with the A-6. In fact, few land based tactical aircraft can match the A-6 in all weather strike capability. In Strike Warfare long range is important. It allows the launching ship to stand-off, reducing the enemy threat and permitting a wider range of targets to be attacked. The combination of the A-6 and Tomahawk land attack missile provides that range.

The introduction of the Battleship Surface Action Group and the land attack variants of the Tomahawk cruise missile have introduced another dimension to Strike Warfare. The battleship has already demonstrated its capability in deterrent and crises response roles off Lebanon and Central America. It is now providing increased flexibility in the employment of our carrier Battle Groups, substituting for them in areas such as the Caribbean.

The Tomahawk missile system has achieved operational status in the fleet. Tomahawk will ultimately disperse our striking power among surface ships and submarines. This significantly complicates the Soviets' defensive problems. They can no longer focus their attention on our carriers, but must dilute their surveillance and warfighting assets to cope with a greatly increased threat. [Deleted.]

To ensure our tactics keep pace with the threat, last summer we established the Naval Strike Warfare Center at Fallon, Nevada. "Strike University" will allow our finest and most imaginative attack aviators an opportunity to develop and exercise tactics to employ our new weapons and aircraft such as the F/A-18. We are excited about the versatile prospects for the F/A-18. It is proving to be three times as reliable as any aircraft in the fleet and is a major warfighting improvement over the A-7 and F-4 aircraft which it replaces.

AMPHIBIOUS WARFARE

The other element of power projection is Amphibious Warfare. Over the past three years Amphibious Warfare has undergone a quiet revolution. Amphibious Warfare and Maritime Prepositioning Ships (MPS) continue on already marked and well established paths to sufficiency.

Our warfighting concept in Amphibious Warfare is based on over the horizon (OTH) assault. The adoption of OTH assault in 1983 as a concept of operations for the nineties was an event with major warfighting significance. This answering tactic to Soviet defensive capabilities has revitalized Amphibious Warfare.

The most important warfighting advantages gained from the concept are speed and flexibility. The OTH assault will have the mobility to attack over a wide front, where the enemy is weak, and allow Marines to quickly position forces astride enemy lines of communication. Amphibious envelopments will be possible through the use of helicopters and Landing Craft Air Cushion vehicles (LCACs), and in the future the Joint Services Advanced Vertical Lift Aircraft (V-22A, formerly JVX). For example, if there were an OTH capable Amphibious Task Force approaching the east coast of the United States at noon today, that task force could execute a landing at dawn tomorrow anywhere between Savannah, Georgia and New York City. Further complicating the problem is the fact that this uncertainty, because of the OTH approach, will persist until the moment of landing. To use a similar example, if our task force was detected off Newport, Rhode Island at the very moment it launched its helicopters and LCACs, the actual landing could take place anywhere between New London, Connecticut and New Bedford, Massachusetts.

In the face of uncertainty on this scale, coastal defense, placement of beach obstacles, mining, and—particularly—troop placement all become vastly difficult problems. At a minimum, we can assume that the enemy will draw back from his coastline in order to be able to cover more potential landing areas. Of additional note is the fact that former considerations such as topography, bottom gradient, effective surf, and beach traffic ability do not affect the LCAC to any appreciable degree.

With your continued support we will be capable of conducting a single Marine Amphibious Brigade (MAB) assault from over the horizon in 1988. [Deleted.]

When we reach our capability to lift the assault echelons of a division, or Marine Amphibious Force (MAF), and brigade (MAB) [deleted] we will also have the capability to conduct three simultaneous MAB-sized over the horizon operations. From a ship support standpoint, the LHD-1 class ship is essential to this assault concept.

The Maritime Preposition Ship (MPS) program is also on track. MPS provides a bonafide global rapid deployment capability. The first MPS squadron, stationed in the Atlantic, will be fully operational this summer. The second squadron, [deleted] will stand-up in September of this year, and the third [deleted] in the summer of 1986. The Marine Corps is well advanced in the reorganization and training of their MABs in coordinated operations with the associated MPS squadron.

MINE WARFARE

Mine Warfare is the strategic and tactical use of sea mines and mine countermeasures (MCM). It includes all available offensive and defensive measures for laying and countering sea mines.

Mining is an important element in our maritime strategy. The objective is to use mines in conjunction with other weapons in Soviet [deleted] areas. [Deleted.]

Our concept for mine countermeasures (MCM) is based first on the premise that the best mine countermeasure is to destroy the mine delivery platform before the mine is laid and second on an effective mine clearing capability. [Deleted.] Our allies properly bear the lion's share of responsibility for clearing European or Asian ports. NATO countries have made significant MCM improvements during the past four years on their own initiative, and they recently demonstrated a good capability in Red Sea operations. [Deleted.]

We are requesting eight mine countermeasures ships this year—four minesweepers (MCM) and four minehunters (MSH). Our total MCM improvement plan is adequate to meet the threat and takes into account the contributions of our allies. [Deleted.]

Last August and September seven RH-53D minesweeping helicopters were deployed in support of operation "Intense Look" in the Red Sea and Gulf of Suez [deleted.]

[Deleted.]

This year the President's budget supports multi-year procurement of 29 MH-53E minesweeping helicopters in the years fiscal year 1986 through fiscal year 1989, ten of which are in fiscal year 1986. The replacement of the aging RH-53D helicopters with the all weather MH-53E will significantly increase our flyaway helicopter minesweeping capability [deleted.]

ELECTRONIC WARFARE (EW)

Our Electronic Warfare policy is "to conduct offensive and defensive Electronic Warfare at every reasonable level of the Command, Control, Communications and Intelligence architectures of our own and enemy forces." Electronic Warfare thus has application across the entire spectrum of naval warfare and in all stages of conflict. The importance of this warfare area is indicated by the Navy's recent decision to centralize overall management of Electronic Warfare under the Director of Naval Warfare.

Electronic Warfare can be grouped into four general categories. First is warning and targeting. Passive EW systems are essential components of our surveillance capability. They provide alert of enemy activity and insights into enemy intentions allowing us to more effectively posture our forces for defense, or to select minimum risk attack options. Passive electronic intercepts also permit targeting of enemy ships, submarines, and aircraft [deleted.]

The second category of Electronic Warfare consists of decoys and off-board electronic devices. These expendable devices are used for counter surveillance, counter targeting, and self-protection for both ships and aircraft. [Deleted.] Chaff and infrared decoys are examples.

Jamming is the third category. We have stand-off radar jammers [deleted]. Jammers are effective in both offensive and defensive roles. Escorting attack aircraft and jamming enemy surveillance and air defense radars is an offensive application, while jamming enemy airborne search radars is a typical defensive employment.

The final general EW category is called onboard countermeasures. These systems, installed in aircraft and on ships, use [deleted] techniques to foil enemy missiles [deleted] [deleted]. These are essential systems, particularly for tactical aircraft, [deleted].

Electronic Warfare is pervasive in that it cuts across and supports all warfare areas. The advent of smart long range weapons has generated a dramatic growth in the importance of Electronic Warfare. It will play an increasingly dominant role in war at sea.

CHEMICAL WARFARE

Our warfighting concept for Chemical Warfare (CW) rests on the twin pillars of deterrence and defense. Today the chemical/biological warfare capabilities of the Soviet Union and the Warsaw Pact are qualitatively and quantitatively the most threatening. However, it is well to remember that they alone are not the only CW threat. [Deleted].

Modern technology makes the production and delivery of chemical and biological agents more efficient, simpler, and economical. CW weapons are increasingly available to countries and organizations where nuclear or conventional warfare capability is limited by their industrial and economic base. [Deleted] we have embarked on an ambitious program which will provide detection and individual protection for our ships and overseas bases. We are designing our new warships with collective protective systems, which are on-board "safe havens" for crew protection, and we are assessing the cost of backfitting this capability on older ships.

Chemical protective equipment in itself degrades our ability to conduct combat operations. The encumbrance of the protective gloves and mask reduce manual dexterity and field of vision and insulate the body while increasing the probability of heat stress. Protective measures alone will not offset the advantages accruing to an enemy who can initiate Chemical Warfare without fear of retaliation. Increased defensive readiness must be complemented with an effective deterrent to discourage first use of chemical weapons. [Deleted].

THEATER NUCLEAR WARFARE (TNW)

Like Chemical Warfare, our approach to Theater Nuclear Warfare is based upon deterrence and defense.

The Navy's TNW modernization program is designed to remove any incentive of the Soviets to use nuclear weapons at sea, ensuring the U.S. Navy is better able to fight and survive in a nuclear warfare environment. [Deleted].

It requires comprehensive training and awareness Navywide—knowledge of nuclear weapon effects on our ability to operate and execute our missions. Finally, an effective TNW program, one that can deter the Soviets from use of nuclear weapons, requires selective modernization of our aging nuclear weapons to ensure they are effective. We are making progress in each of these areas. [Deleted].

With respect to [deleted] we require a clear case for each one and develop and procure only those that provide a unique and significant capability. One of these is the Tomahawk nuclear land attack cruise missile (TLAM/N) which reached initial operational capability (IOC) in June 1984. [Deleted] most of our non-strategic nuclear weapons were designed in the nineteen fifties and are not well suited for the current and future threats. [Deleted.]

SUMMARY

That completes my overview of naval warfare mission areas, illustrating in broad strokes how we plan to counter the Soviet threat and the proliferation of sophisticated weapons throughout the world. We must ensure that weapons systems designed to counter the most stressing threat—normally provided by the Soviets—are also capable of dealing with modern weapons (often produced in the free world) that are in the hands of many smaller countries. To be capable today in the face of this threat spectrum requires effective warfighting systems and emphasis on readiness and sustainability (staying power). As the Director of Naval Warfare, I am particularly sensitive to the need for a balance between readiness, sustainability, and capability improvements. I believe we are maintaining that balance. Today, readiness indicators are up across the board.

Funding for readiness experienced real growth of almost 33 percent during the 1981 to 1986 period. Readiness is also directly related to manning and manning improved from 89 to 95 percent during 1981 to 1984.

In the area of sustainability—or staying power—the picture is similar. The indicators are all up. Sustainability funding has averaged 16.4 percent real growth annually from 1980 through 1985. In the area of non-nuclear ordnance our progress has been dramatic and the 1986 budget will finish buying combatant fill of almost every weapon. [Deleted.]

In the area of ordnance procurement, it is important to remember that there is an average two year lead time from funding appropriation to first deliveries of the weapon. The 1982 purchases are just starting to arrive in the fleet today. So while the fleet is still reporting shortfalls, there is ordnance in the pipeline that will arrive in quantity starting this year.

In summary, the Navy has the ability to wage warfare across the entire warfighting spectrum, and steps and programs are in place to ensure we retain this capability against the projected threats. We have seen improvements in all warfare areas over the past few years. These improvements enable us to combat the ever increasing threat, a threat which is not confined to the Soviet Union, but includes worldwide terrorism and some Third World nations. With your continuing support, our warfighting capability can meet challenges which range from complex, long range weapons systems to simple terrorist bombs.

I am pleased to report today that your Navy is ready. Thank you.

Senator Cohen. Thank you very much, Admiral.

I have some general questions that I will ask, and what I do not ask I will submit for the record.

Let me go to you, Admiral Butts, first.

SOVIET SUBMARINES

You talked earlier about the Soviet submarines [deleted]. The question is, why are they doing this and should we be doing something similar? Also, what kind of problem does this pose to us with respect to our torpedoes?

Admiral BUTTS. I think the Soviets are going [deleted] principally for two reasons. One relates to avoiding detection from the variety of things [deleted]. The other is their concern for operating [deleted] and their ability to maneuver [deleted] theirs and, they believe, ours. If you have a submarine [deleted] then, obviously, your survivability [deleted] would be higher [deleted].

In terms of the effectiveness of their submarines to counter our torpedoes, torpedoes have additional kinds of sensors, so I do not think [deleted] per se, will have a great effect in that regard.

A more serious concern in that regard is the Soviet use of large stand-off distances, in submarines like Oscar, for example, with sheet-metal outside of the pressure hull which, in turn, gives you a larger stand-off explosion distance for a torpedo.

We have actually looked at that kind of problem with our weapons experts and have made some changes to U.S. weapons as a result of that analysis.

Senator COHEN. Do you see no value for us in trying [deleted].

Admiral BUTTS. Yes, sir, but our concept of operations is different than the Soviets. We do, in fact, take active measures to reduce our signatures. We just do not work at it to the extent that the Soviets do. Of course, if you are really going to reduce it all the way down, you would have to go to [deleted] something like that—and that would be enormously expensive.

SOVIET [DELETED] CAPABILITY

Senator COHEN. Don't they have the [deleted] capability in the world?

Admiral BUTTS. Yes, sir, they do.

Senator COHEN. So they are taking rather aggressive, active measures [deleted] and for the most part we are not?

Admiral BUTTS. Our concept of operations would be a little different—hopefully not to have to penetrate those [deleted].

Senator COHEN. Well, I don't want to get into the whole business of the Secretary of the Navy's "taking it to them" statements that had been heard in this committee room in the past; but we do anticipate some kind of offensive thrust in at least one of those war games that we conduct, don't we?

Admiral BUTTS. Yes, sir.

Of course, we do have very good small object locators, mine-avoidance sonars [deleted].

CHEMICAL WEAPONS

Senator COHEN. Admiral, you described the chemical weapons situation. How would the Soviets, in all probability, lay down a chemical attack against surface ships?

Admiral BAGGETT. They could do it in any number of ways, Senator.

One mode would be to use cruise missiles. For example I showed a dispersed formation. They could, with the warhead capabilities or the volumetric capabilities in their cruise missiles, which are immense beasts, they could have one break up overhead, and have the nerve gas disseminated by that means. That would be one example.

They could do that against not only ships at sea but also over our base complexes, say, in the Mediterranean.

Senator COHEN. We have heard testimony before the subcommittee over the years and always we hear, "yes, it is a problem, it is a threat; but, after all, you have to take into account the wind conditions and we do have mobility." But the fact of the matter is, chemical warfare is a very serious threat for which we do not have, first, a retaliatory capability, and, second, are unlikely to have one in the near, maybe even the foreseeable, future.

Isn't that right?

Admiral BAGGETT. I will take the first part of that question first.

The biggest threat that we see is to our amphibious forces, and that is only a little bit more than we see to our carrier forces. Conducting an amphibious assault from ships that have been exposed to chemical warfare is unbelievably difficult. I spoke about a Citadel and a protective system. How do you get the helicopter crews, and troops to the helicopter in that environment, much less how do you operate your weapons systems and employ them once you are engaged?

With respect to whether or not we will ever get that capability, I sincerely hope that this will be the year of decision with regard to that, because what I said about deterrent necessity I firmly believe; that in the absence of having that capability, I think we are just inviting their employment of chemical warfare.

WATERFRONT SECURITY

Senator COHEN. Let's talk for a minute about terrorist activities, especially about waterfront security.

My understanding is that the Air Force has responsibility for security throughout the DOD for programs to improve waterfront security. Is that right?

Admiral BUTTS. Yes, sir; that is correct.

Senator COHEN. Is that a good idea?

Admiral BUTTS. The Air Force has been very good at this thus far. We work closely with them on the waterborne intrusion detection.

Senator COHEN. I want to mention Luke Air Force Base and that recent incident out there. Why are they so capable of dealing with waterfront security?

Admiral BUTTS. Not so capable in dealing with waterfront security per se but in dealing with various kinds of security devices, of which waterfront security happens to be only one.

The Air Force has a very professional security organization. We, of course, with the help of the Congress, are putting additional dollars in. We put $2.5 million this past year into shipyard security, for immediate enhancements.

Waterborne security, of course, is a particularly severe problem for us. We have for the first time ever in the U.S. Navy concentrated all of the security responsibilities under a single manager. At the present time, I am that single manager. I have had that responsibility for about 1 year.

We have had the first session with the Chief of Naval Operations to look over our program last summer. We have another update for him scheduled, which will go whenever we can get to him now—any day.

There has been a substantial amount of progress in updating what it is we, the Navy, can do in terms of physical protection, which includes working with the Air Force and with the Army on the best of the sensors and systems.

It also includes what we can do for ourselves in learning everything we can about terrorists.

As you may know, sir, the U.S. Navy had the first dedicated 24-hour a day antiterrorist alert center.

TERRORISTS

Senator COHEN. What happens if a group of terrorists come dressed as nuns and float in a canoe down the Thames River in Connecticut?

Admiral BUTTS. A group of terrorists dressed as nuns probably will be treated rather kindly until people discover they are not nuns. That is the way our systems work. It is going to be very difficult to plug every hole that we have.

Senator COHEN. I have looked at some of the shipyards around this country, and it is a wonderful promised land for terrorists. I don't know that, with all we have done up in Groton, enough has been done. I suspect this is true of every other facility. Senator Wilson is not here, but San Diego, for instance, just has to be a haven for terrorist activities, because there is no way in the world we can protect those ships. There are commercial ships and boats coming in and out. There is no 5-mile limitation prohibiting them from coming in close to those boats at the Navy piers.

Admiral BUTTS. We cannot provide absolute protection. We can do the best we can to identify threats through whatever intelligence sources.

We have established, under Vice Admiral Lyons, in the Office of the Chief of Naval Operations a Red Team concept, a group of specially trained people, including Navy SEALs, who are expert in how terrorists act, think, and behave, and are available to help commanders formulate defenses against likely terrorist actions. That is an example of the approaches we are taking.

We literally are looking at everything we can do.

I and others who work for me have been visiting various manufacturers, people who are very active in the sensor field, trying to learn about every sensor that is under development in the United States today, and pick out the best of those and make them available for these very difficult target areas. The target you mention is really the most difficult of all.

Senator COHEN. What was the incident that happened a couple of weeks ago, with pirates boarding a ship? Where was that?

Admiral BUTTS. That was a ship under charter in the Straits of Malacca. The pirate threat there is well known.

The ship was on watch, alert, expecting a pirate attack. Nothing happened so I guess they secured the watch. In the Merchant

Marine, when you secure the watch, you really secure the watch. There was nobody topside.

Well, along came the boat and they boarded and stole several thousand dollars from the ship's safe.

Senator **Cohen**. What sort of special protection do our ships [deleted] have when they go into a foreign port? What sort of security do we have?

Admiral **Butts**. We have a very extensive shipboard security system [deleted] which includes additional guards, alarm systems, various automatic devices. It is a combination of people and things to provide the best protection we can.

We also do an environmental protection survey for the ship, and he knows exactly what kind of environment he is going to find in whichever port he happens to visit. This is done by the Naval Investigative Service.

Senator **Cohen**. You mentioned [deleted]. Are they vulnerable to attack by terrorist groups, in that location? What about that firing on some NATO ships, including ours, in a Spanish harbor recently?

Admiral **Baggett**. They are not vulnerable to small arms. [Deleted.] We are talking about something appreciably larger than a 50 calibre machinegun to get through that [deleted]. They would be vulnerable.

The whole counter to that has to be a perimeter defense that involves knowledge of the environment as well as being able to maintain security pierfront, and not have your ships tied up in waterfront areas that are subject to such attacks.

CUBAN THREAT TO THE CARIBBEAN

Senator **Cohen**. The Cuban threat to the Caribbean, you mentioned that they had, what, four subs there now?

Admiral **Butts**. Three now and a fourth one is expected. They have a fourth. It is an older submarine that they are using for school. There are three operational Foxtrots and probably a fourth sometime in the future.

Senator **Cohen**. What kind of threat does that pose to us with respect to our shipping going to NATO in a wartime scenario?

Admiral **Butts**. Well, it is not just the submarine threat; it is the aggregate of the aircraft and the naval threat.

The straits there are very narrow. The problem with Cuba is it is not the sort of thing that you can ignore.

It is not a threat that will tie you down forever. It is not a threat you can't defeat. But, unless you deliberately want to set out and neutralize it, if you are in a hostile situation and you are not sure that Cuba is really neutral, then you must, in fact, retain forces committed to protect against that threat which you might rather use somewhere else.

Three submarines, if unlocated and if operated efficiently, could create quite a bit of havoc. The Germans, after the initial stages of World War II, had a very few submarines that did, indeed, sink a large number of ships off the U.S. east coast and in the Gulf of Mexico.

Senator **Cohen**. Theoretically, if we had a declared war in Europe, Cuba probably would be one of the prime targets, to take out their forces rather quickly.

Admiral **Baggett**. That is one of our points, Senator. We would not devote a carrier battle group that would linger and determine which way Castro was going to blow. It could be one of these: He would take a threatening posture and we would have the carrier battle group in proximity to Cuba, within strike distance; and then he would relax and they would start off for the North Atlantic; and in a sense they would be on a rubber band at his whim. I think we would have to pin down the Cuban issue very smartly at the start of any hostilities.

With respect to the ASW threat in the Caribbean, that SLOC through the Florida Straits would have to be addressed with appropriate ASW forces regardless of that. I sincerely think the Soviets would look to that as one of the key SLOCs, recognizing the fact that we load about one-half of what we load out for Europe through the Gulf port cities and facilities.

SOVIET MOBILIZATION CAPABILITY

Senator **Cohen**. Would you discuss briefly the Soviet mobilization capability versus our own and their readiness versus our own?

Admiral **Butts**. The Soviet mobilization concepts are different than ours in that on a day-to-day basis—let's talk about the force in being first—we are at what would be described as a more ready posture. We have more ships deployed and more forces deployed. The Soviets still deploy only about 15 percent of their Navy.

They have a very rapid capability, though, in a period of crisis to get up to [deleted] the force that they have to sea and in the positions that they want them to occupy [deleted].

Beyond that, in terms of military manpower, the Soviets have an enormous base of trained military personnel that they have to draw upon—not just for the Soviet army, which is traditionally thought of as the big mobilization demander, but also the navy and the Soviet air armies, and probably the Soviet strategic rocket forces as well.

So, in terms of an immediately available manpower reservoir, the Soviets are far better equipped than are we.

Also, I mentioned earlier the infrastructure that the Soviets have built up, the facilities to build and repair things.

I mentioned to the subcommittee 2 years ago that the Soviets have in one shipyard in the Northern Fleet more covered ways for building submarines than we have in the entire United States.

The same thing is true of the factories which produce tanks, aircraft, cruise missiles, mines, and torpedoes. There is an enormous infrastructure there which we would be hard-pressed in this country now to match in a mobilization sense if we got into any kind of conflict that became a prolonged conflict.

Admiral **Baggett**. I would just add one comment with respect to the total force concept—and the reliance on our Reserves that we are really serious about in the Navy. For example, 13 VP squadrons are Reserve squadrons, the horizontal integration of A-7E, F/A-18 and SH-2 aircraft into the Reserve force, the new FFG-7s, the

FF-1052 frigates that are going into the Reserve force, and we will have some 18 by the year 1990 of those Naval Reserve Force [NRF] FFG-7 class frigates by the year 1990—it is imperative that we have the capability to call up our reserves in the time of crisis to perform the missions that are being transferred to them.

That is the only comment I would add.

Senator COHEN. Are we operating, in your judgment, at too high a tempo?

Admiral BAGGETT. Are we now, in the Navy?

Senator COHEN. Yes.

Admiral BAGGETT. No, sir, I don't feel that way.

I feel very strongly that operating our ships and operating our forces is the way to keep them ready and to keep them trained. If we don't, we really do not know what the status of the ships and systems are.

How much is enough is the question in terms of impact on people. From that standpoint, having been a type commander, I feel very strongly that we are right on the margin right now. When I see people operating at a two to one ratio—in other words, 12 months in home waters and 6 months forward deployed—that is too tough. I think we should look to relax those worldwide commitments, where possible, to give us more flexibility in deployment patterns and reduce the strain on our sailors and families.

My first part of the answer was directed toward materiel readiness and training, setting aside for the moment the impact on families, retention, all the people aspects that go into that question.

Senator COHEN. I appreciate your comments about the manpower aspects. It also does have an impact on materiel, as well, especially if we are operating that kind of rate. It is also wearing out faster.

Admiral BAGGETT. Senator, I don't believe it really has that much impact on wearing out of equipment. I really believe that equipment that is operated tends to operate better than equipment that is laid up.

Fundamentally, for example, with a fire control system, if the fire control system is not lit off for a protracted period of time and you have casualties introduced just by the environment while being laid up, when you turn that fire control system on, you have, essentially, an Easter egg hunt to find out where the problems are in that system.

On the other hand, if that system is operated daily and you do your daily system operability tests, you are able to pinpoint problems as they initially occur, as measurements get off-scale limiting the parameters, you can get in and troubleshoot with some specificity. As opposed to being on an Easter egg hunt if you let the equipment lie idle for protracted periods.

NAVY MARITIME STRATEGY

Senator COHEN. I have a nice technical question that has been prepared for me here. I might point out that Captain Lynch [Navy OLA] gave me a copy of "Hunt for the Red October" which has occupied a good portion of my evening reading.

The question is, does your Navy maritime strategy include the option of attacking Soviet ballistic missile subs in a forward area?

If this option was precluded by civilian leadership, how would you then go about distinguishing between an attack submarine or a strategic submarine when conducting ASW?

Admiral BAGGETT. I don't believe you could effectively, Senator. I think it would be a stricture that would be very, very onerous from the standpoint of ASW. I don't believe you could make a distinction in a combat environment—even prehostilities—with certainty to distinguish between SSBNs and attack submarines. It is going to get worse in the future with the quieting trends that I depicted, regardless of our capabilities. I think you would not be able, with any certainty, to make that distinction.

Senator COHEN. We have a few other questions which we will submit for the record.

I want to thank both of you for coming before the subcommittee. I am sorry we did not have greater attendance here today. Apparently we are competing against the White House today. Everybody is down there to discuss foreign policy and military strategy. That takes precedence over this, I guess, at least for some people.

Admiral BAGGETT. Senator, thank you for this hearing.

Admiral BUTTS. Yes, sir. We appreciate it.

Senator COHEN. It has been very helpful.

Thank you both.

[Questions with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR DAN QUAYLE

SOVIET GRAND STRATEGY

Senator QUAYLE. Can you discern any changes in Soviet grand strategy from the new Soviet military and naval deployments and exercises conducted in the last 5 years?

Admiral BUTTS. Soviet military and naval deployments and exercises over the past five years clearly demonstrate Moscow remains committed to developing balanced forces increasingly capable of accomplishing the full range of wartime and peacetime tasks. These activities do not, however, portend any notable change in Soviet grand strategy. The Soviet Navy, specifically, is building forces [deleted] to better enable it to carry out its [deleted] missions [deleted].

The Soviet Navy's improved capabilities have also enhanced the accomplishment of its primary peacetime mission—[deleted] In this regard, Moscow will continue to focus on maintaining a permanent naval presence [deleted]. The Soviets probably will attempt to expand their level of naval activity [deleted].

They are also likely to step up efforts to acquire access [deleted] although they are unlikely in the near term to gain much access [deleted]. Traditional techniques of naval diplomacy will continue and, with the advent of Western-style aircraft carriers in the Soviet inventory [deleted].

SOVIET GRAND STRATEGY TOWARD CHINA

Senator QUAYLE. What is Soviet grand strategy vis a vis China?

Admiral BUTTS. Soviet long-range military strategy regarding China [deleted].

Soviet Pacific Ocean Fleet contributions in a war against China [deleted]. In the near-term, Soviet grand political-military strategy [deleted].

SOVIET GRAND STRATEGY TOWARD NATO

Senator QUAYLE. What is Soviet grand strategy vis a vis NATO?

Admiral BUTTS. Soviet grand strategy toward NATO [deleted]. This grand strategy will continue to be played out against the background of Soviet attempts [deleted].

SOVIET GLOBAL STRATEGY AND CURRENT ACTIVITIES

Senator **Quayle**. What is the relation between the grand strategies above and Soviet military and diplomatic efforts in the Pacific, South East Asia, the Persian Gulf region, the Middle East, Africa and Latin America?

Admiral **Butts**. Soviet military and diplomatic efforts around the world [deleted.] There are many political, economic and social instabilities in each of the areas you mentioned which the Soviets will try to exploit. [Deleted.] Their actions will be supported by [deleted] perceptions of Soviet military power. As such, there is a fundamental synergism to each of the Soviets' grand strategies.

SOVIET GRAND STRATEGY AND FUTURE CHALLENGES

Senator **Quayle**. In light of our understanding of Soviet grand strategy and our knowledge of Western vulnerabilities in each of the regions mentioned above, can you say anything about where Soviet or Soviet sponsored aggression is (a) most threatening to Western interests, (b) most likely to occur, (c) cheapest politically and militarily for the Soviets to attempt? (Be sure to discuss the specific cases of China and the Persian Gulf.)

Admiral **Butts**. The Soviets can be expected to seek change detrimental to U.S. interests wherever political instabilities and exploitable opportunities arise. Areas where Soviet or Soviet-sponsored aggression is likely to be most threatening to Western interests in the next year or so include [deleted] Soviet or Soviet-sponsored aggression is most likely to occur. It is also the area which presents the Soviets the best opportunities to expand their influence at Western expense at the least political costs and military risks. There, Moscow can exploit residual anti-colonialism; develop commercial and cultural relations; offer economic aid, arms and advisors through Friendship Treaties for access to military facilities; and promote creation of pro-Marxist regimes. The [deleted] region remains the most important [deleted] target strategically for Soviet exploitation [deleted]. We can expect Moscow to seek broader influence. [Deleted] opportunities present Moscow the potential [deleted]. Soviet support enables Vietnam to continue its military operations [deleted] the Soviets will continue supporting [deleted].

SDI EFFECTS ON NAVAL DEPLOYMENTS

Senator **Quayle**. The most prominent Soviet naval task listed in your testimony is to deploy and protect Soviet SSBN forces based in seas close to the Soviet Union. Given that the tracking and early destruction of these forces are among the most important tasks for our navy, what impact would an effective SDI defense against Soviet SLBMs have on both Soviet and NATO naval deployments?

Admiral **Butts**. A fully effective anti-ballistic missile defense would complement our present wartime strategy [deleted]. It would present the Soviets with additional problems [deleted] and likely lead them to attempt the development of SDI countermeasures. I would foresee [deleted] Soviet or NATO naval deployments as a result of this development.

SOVIET LAND ATTACK CRUISE MISSILE WARHEADS

Senator **Quayle**. Can we confirm on the basis of intelligence that the Soviets have land attack cruise missiles with conventional warheads?

Admiral **Butts**. We believe Soviet sea-launched land attack cruise missiles (SLCMS) are armed [deleted].

MID RANGE AIR TO SURFACE MISSILE (MRASM)

Senator **Quayle**. Several years ago there were plans to develop a Mid Range Air to Surface Missile (MRASM) for deployment on B-52s. Currently the Navy has no air-launched mid or long range cruise missile. Why was the MRASM program cancelled (lack of range, not survivable with its 300 nm range, lack of service interest)? Does the Navy have any other similar program now underway?

Admiral **Baggett**. The MRASM program was terminated in fiscal year 1984 with concurrence of Congress because other weapons available and in development better met the requirement. Harpoon fills the current air-launched Anti-Surface Warfare requirements and the new Advanced Strike/Interdiction Weapon System (ASWS/AIWS) is planned to meet the standoff land attack needs. ASWS/AIWS is funded in fiscal year 1986 with a projected IOC in the early 1990s.

SUBMARINE TECHNOLOGY

Senator **Quayle**. Recently, Brazil and Argentina announced their intention to develop their own nuclear submarines. The PRC is deploying attack nuclear submarines. The French are reported to be interested in exporting nuclear submarines. Is the threat of the spread of such submarine technology of concern to the Navy? If so, why?

Admiral **Baggett**. Development of nuclear powered submarines requires substantial investment of technical, industrial and financial resources. The large resources required to build and support nuclear powered ships safely has generally deterred their development except for major naval powers who can commit to a significant ongoing program. While there is some indication of interest in nuclear submarines in both Brazil and Argentina, it is unlikely for the foreseeable future, that either country will undertake the major effort and expenditure involved with deploying a nuclear submarine force.

[Deleted.]

The French are currently building small nuclear attack submarines for their own navy. We have no indication that they plan to build these submarines for export at this time.

Maintaining a technological edge is a vital concern for all branches of the military. Activities which have the potential for transferring technology to non-allied countries should be carefully evaluated.

QUESTIONS SUPPLIED BY SENATOR JEREMIAH DENTON

MARITIME THREAT

Senator **Denton**. Admiral Butts, is ATAC involved in the effort to improve security of waterfront areas and ships against unconventional or terrorist attacks? Including with nuclear devices? In what way and through what chain of command?

Admiral **Butts**. The primary mission of the Navy Anti-Terrorist Alert Center (ATAC) is to conduct all-source analysis of terrorist and unconventional threat-related information, on a 24-hour-per-day basis, and to provide indications & warning (I&W) of potential threats to the lowest tactical level of command in the Navy and Marine Corps. The ATAC indirectly participates in efforts to improve physical security of waterfront areas and ships against unconventional or terrorist attacks. Because of the detailed knowledge of the worldwide terrorist threat, the ATAC is requested to provide assessments of the terrorist threat to Department of the Navy facilities, in the U. S. and overseas, and to deployed forces prior to overseas port visits. The threat assessments provide the Commander or Commanding Officer with the evaluated intelligence data to make decisions affecting the security of his command.

The threat assessments are also provided to the Physical Security and Law Enforcement Department of the Naval Investigative Service which conducts physical security surveys of Department of the Navy facilities. The surveys are then conducted with the local assessed threat as the baseline.

The ATAC is a division within the Naval Investigative Service Headquarters and operates within that administrative chain of command. In performing its I&W and analytical mission, the ATAC follows the Navy and Marine Corps operational chain of command with one significant exception. For timely I&W of terrorist threats, the ATAC is authorized direct communication with any Navy or Marine Corps command or unit worldwide. When this is done, the intervening chain of command is kept informed; however, ATAC is not required to obtain higher authority approval before sending threat warnings. It is the responsibility of the Commanders or Commanding Officers involved to take appropriate actions to counter the terrorist or unconventional threat.

SOVIET CARRIER BUILDING AT NIKOLAYEV

Senator **Denton**. Admiral Butts, can you explain on what basis you have concluded that the carrier building at Nikolayev is a CTOL rather than a VSTOL carrier? Have we seen characteristics, [deleted], that clearly mark it as such? I of course know about the work [deleted] but the last information that I received in that matter, early last fall, was inconclusive, and the information available on the construction at Nikolayev at that time did not indicate conclusively [deleted] rather, it seemed to indicate that it was unlikely that it was.

Admiral BUTTS: You are correct that the information available on the aircraft carrier under construction at Nikolayev is not conclusive. Our best estimate from all-sources remains CTOL and is supported by characteristics visible on the ship [deleted].

In any event, the characteristics of this ship will differ considerably from those of a U.S. aircraft carrier [deleted]. This indicates a ship designed for missions of narrower scope. We believe its primary wartime mission will be air defense during sea control operations. [Deleted.]

SOVIET ATTACK SUBMARINE OPERATIONS

Senator DENTON. Can you also provide information about Soviet operations of attack submarines off the coasts of the United States—numbers, missions, activities—and assess the threat that they present to U.S. naval forces?

Admiral BUTTS. We believe there have been [deleted] Soviet nuclear-powered attack submarine (SSN) patrols off the U.S. east coast and [deleted] off the west coast since 1966. The Soviets have used their most modern SSNs for these patrols. [Deleted] the focus of these patrols has been [deleted] *Victor III* SSN's—the backbone of the Soviet attack submarine force—began U.S. patrols [deleted] and have been used [deleted]. The [deleted] Soviet SSNs [deleted] operating off our coasts do not pose a major threat to U.S. naval forces.

SOVIET SUBMARINE ACCIDENTS

Senator DENTON. Admiral Butts, can you provide information, at the classified level of your briefing about Soviet submarine accidents and what that record implies for Soviet submarine capabilities and operations?

Admiral BUTTS. Since the early 1950s, the Soviet submarine force has experienced numerous, serious submarine casualties--sinkings, propulsion failures, fires and navigational accidents. Some of the problems are attributable to early Soviet [deleted] submarine design [deleted] in the first stages of the Soviet "technological revolution." The "second generation" of [deleted] submarines, introduced in the late 1960s, reflected improved technology, but continued to experience design-related problems. The new submarine classes launched since about 1980 exhibit [deleted] improvement. [Deleted] the reliability of these units may prove to be significantly better.

In addition to [deleted] system design factors, some accidents clearly stem from inadequate crew training. Soviet submarine training is specialized, producing officers and men who can perform quite well within their narrow field, but who often encounter difficulty in coping with the unexpected. The Soviets [deleted] are actively pursuing more realistic and comprehensive crew training.

With respect to the warfighting implications of these deficiencies, I believe they would not be significant unless a conflict became protracted. Soviet naval strategy and readiness philosophy are aimed at ensuring a maximum combat capability at the outset of hostilities. [Deleted] As the new submarine classes launched in the past 5 years enter the Soviet fleet in numbers, Moscow's ability to sustain its combat capability could, however, improve significantly.

QUESTIONS SUBMITTED BY SENATOR SAM NUNN

SUSTAINABILITY

Senator NUNN. My staff indicates that although the Navy has made improvements in the readiness/sustainability area, that many shortfalls still exist. For example, we only have [delete] the DIFAR sonobuoys that the Department of Defense says that we require on hand today, and further, that we have only bought [deleted] our needs in this area. In air-to-air missiles, we only have [deleted] the required Sparrow, [delete] the Sidewinder and [deleted] the Phoenix missiles required on hand [deleted] we will have bought only [deleted] these systems, respectively. I could quote similar figures for mines, air-to-ground ordnance and other areas. At what point would you project that the magazine of every ship, submarine, and aircraft squadron could be filled to complete capacity and that we could actually have extra munitions in reserve for almost every area for resupply and "reshoots"? Further, are we still cross-decking ammunition and missiles to units that are relieved on station?

Admiral BAGGETT. We project that the magazine of every combatant (ship, submarine and aircraft squadron) will be filled to complete capacity [deleted] At that time, we will have extra munitions in reserve for resupply and "reshoots." Currently, cross-decking is still required for some categories of weapons to complete loadouts to units that are relieved on station. However, this requirement has declined substantially. Since 1980 ammunition and weapons funding has increased [deleted] [deleted] This improvement reflects the fact that we have programmed [deleted] sustainability dollars for the purchase of ordnance.

SEAPOWER

Senator **Nunn**. In your statement, you say that the bulk of Soviet naval forces will be devoted to defensive missions, [deleted] You base this on the qualitative superiority of U.S. forces. How confident are you [deleted].

Admiral **Baggett**: We have conducted careful analysis [deleted.] To meet these requirements, the Soviets will have to expand the area in which their Navy would initially deploy the bulk of its Northern and Pacific Fleet forces for sea control/sea denial operations [deleted].

Over the long term Soviet surface forces will be incapable of conducting an offensive strategy until they are able to master the art of taking tactical aircraft to sea—in numbers. Without the ability to control the air over their forces and project significant power ashore they will be *very* vulnerable once they venture beyond the umbrella of their land-based air.

In sum, I am confident in our assessment [deleted.]

MARITIME THREAT

Senator **Nunn**: In your statement, you detail some of our operational capabilities to track two classes of Soviet submarines, both of which were initially built in the 1960's. How confident are you that similar operations could be conducted against the very latest classes of Soviet submarines that are being built and deployed in the 1980's?

Admiral **Baggett**: The Victor III SSN is the latest class with significant numbers in the Soviet submarine force. [Deleted.] A more recent successful evolution was initiated [deleted]. The follow-on to the Victor III, the Sierra class SSN, the Akula class SSN, and the Mike Class SSN are third generation attack submarines [deleted]. However, to maintain our acoustic advantage in the future we have redirected surface ASW sensor procurement plans, initiated a major shift in air ASW R&D programs and established the requirement for mobile and tactical systems [deleted]. With these redirections in fiscal year 1986, scheduled improvements of the SSN-688 and development of the new SSN-21, [deleted].

COUNTER-PLATFORM TACTICS

Senator **Nunn**. In your statement, you discuss our "counter-platform" tactics and stress the need to "shoot the archer before he shoots his arrows." How can we do this if the Soviets preposition and disperse their forces and then "loose their arrows" as the first act of war? Won't they already have done their damage by the time we're ready to respond, or are you suggesting that U.S. Navy pre-emptively initiate the conflict in anticipation of a Soviet attack?

Admiral **Baggett**. Alerted by the National Command Authority and intelligence sources of any Soviet pre-position and dispersal of forces, our own forces will be in an increased state of readiness, enabling us to immediately counter both a platform and a missile threat.

Early warning and long range surveillance of potential attacks will enable the fleet to posture AAW forces. Launched on indications and warning or postured against a perceived threat, carrier-based early warning aircraft (E-2Cs), electronic warfare aircraft (EA-6B's) and interceptors (F-14s, F/A-18s) will be positioned to engage attacking platforms at long range [deleted]. Simultaneously, soft kill measures, [deleted] and close-in weapon systems will further dilute the potential damage from a first strike.

Although our AAW strategy is not based on pre-emptively initiating the conflict in anticipation of a Soviet attack, the forward positioning of forces and counter-targeting tactics will enable the fleet to destroy or counter both platforms that have initiated attack and those that have not yet reached a launch position. Our counter-platform strategy is based on not only attriting the platforms before weapons release, but also on preventing the platform from returning in subsequent attacks.

Senator **Nunn**. If we are forced to abandon our counter-platform tactics as a result of a Soviet attack, and concentrate on a counter-missile strategy, will we have enough weapons with which to successfully engage all of the incoming Soviet missiles launched from ships, submarines and aircraft that you describe in your statement?

Admiral BAGGETT. We do not intend to abandon our counter-platform strategy as it is based on not only preventing enemy platforms from launching missiles, but also on preventing repeated attacks by the same platforms, conserving AAW weapons and preventing saturation of our area and close-in AAW systems. This strategy is particularly applicable to the aircraft threat where our area defense AAW ships and our fighters, which are already airborne, can also attrite the "empty" bombers and electronic counter measure support aircraft, thereby precluding additional attacks by the same platforms. By destroying enemy aircraft prior to missile launch, we are engaging one platform vice multiple missiles and conserving soft-kill and firepower weapons needed to counter surface, submarine and aircraft launched missiles.

The objective of our counter-platform strategy is to destroy enemy surface ships, submarines, and aircraft before they fire their missiles. However, in the unlikely event that enemy platforms achieve missile launch positions, our counter-missile strategy will ensure that we have enough weapons to successfully engage incoming missiles. The type and depth of counter-missile weapons available to support these objectives includes both hard-kill firepower weapons and soft-kill weapons. [Deleted.]

One of the keys to meeting our counter-missile objectives is the firepower weapon accuracy and increased capability provided by the Aegis cruisers and close-in weapons systems. In the future, pacing the threat are the CG–59 guided missile cruisers, DDG–51 guided missile destroyers and improved close-in weapons systems. In order to support firepower weapon sustainability, our current plans and authorized procurement levels will build [deleted] war reserve of all non-nuclear ordnance [deleted].

Additional key elements in meeting our counter-missile objectives are tactical cover, deception and counter-targeting measures. These "soft-kill" measures [deleted].

These measures [deleted].

SUSTAINABILITY

Senator NUNN. You have discussed building up our sustainability base in your statement—particularly Phoenix, Sparrow and Sidewinder air-to-air missiles. Are you satisfied if a war with the Soviets were to start next week, that we have enough of these, and other critical ordnance and munitions to carry out our current strategy and maintain our global commitments?

Admiral BAGGETT. Enormous shortages created over a decade of unilateral disarmament in the 1970s are not going to disappear overnight. However, the indicators are all up. We have achieved impressive improvements in four years of sustained growth in our ammunition accounts as funding increased more than 65 percent in real terms. Our current procurement practices have made it possible to have production rates necessary to reach our complete warfighting sustainability goals by 1989. The Fleet and Fleet Marine Force are more ready now than at any other time in postwar history.

TOMAHAWK ONBOARD SURFACE SHIPS

Senator NUNN. Are you at all concerned, now that we are putting Tomahawk missiles on board surface ships, that those ships will be a higher priority target for the Soviets to sink? Are you concerned that Tomahawks on board surface ships will greatly complicate our (and the Soviets') ability to achieve verifiable and meaningful arms control agreements, in order to control the proliferation of nuclear weapons?

Admiral BAGGETT. Tomahawk cruise missiles are being placed on battlegroup capable surface ships to increase the Navy's strike capability beyond carrier force levels and to distribute that capability throughout the battlegroup. This not only significantly enhances overall battlegroup firepower, but it also substantially complicates enemy planning. A potential enemy must be able to simultaneously mount an effective attack on all battlegroup ships in order to neutralize the battlegroup. This would be extremely difficult to accomplish with a high degree of assurance.

The Soviet Union has deployed nuclear capable sea launched cruise missiles aboard surface ships and submarines for years. We have examined this situation carefully in developing U.S. arms control negotiating positions. The presence of Tomahawk cruise missiles on board U.S. surface ships does not add to the verification challenge posed by existing Soviet weapons.

SOVIET INTELLIGENCE CAPABILITIES

Senator **Nunn**. Admiral Butts, Admiral Baggett discusses amphibious assault operations from over the horizon in his statement. He states that with over the horizon attack strategies, that much greater surprise and flexibility can be used to frustrate an enemy's ability to predict where an amphibious assault will take place. Do you think that, given all of the Soviets' intelligence capabilities, that we could launch an amphibious attack anywhere near their shores without the Soviets knowing when and where precisely, that attack would take place.

Admiral **Butts**. Although the answer to your question is somewhat scenario dependent, I believe a well planned and supported amphibious assault [deleted] could achieve tactical surprise.

OFFENSIVE MINING

Senator **Nunn**. Admiral Baggett, with what types of mines specifically, could the United States lay "inactive" offensive minefields today, prior to the outbreak of hostilities? Do we have enough mines in our inventories to do this on anything but a very limited scale?

Admiral **Baggett**. At present, the only "inactive" mine capability is a feature called delayed arming. Delayed arming maintains a mine inactive for a preset time, after which the mine becomes armed. [Deleted.]

MINE THREAT TO U.S. PORTS

Senator **Nunn**. Are you confident that U.S. ports are in little danger of being closed from the threat from offensive mine warfare? Is there a threat in this quarter, posed by Soviet submarines, merchant ships, aircraft based in Cuba, or even Cuban ships/aircraft/submarines?

Admiral **Butts**. The Soviets have long emphasized mine warfare and have built the largest, most diversified mine inventory in the world. We believe Soviet wartime offensive (and defensive) mining would, however, be concentrated in the European and Far Eastern theaters. [Deleted] of a general war, but they do have that capability. Demands on the Soviet general purpose submarine force for SSBN defense and other strategic tasks, [deleted]. With regard to the threat from Cuba, the Soviets do not maintain permanently deployed naval forces in Cuba and those forces which usually operate from that island—primarily reconnaissance and ASW aircraft—are not optimized for mine-laying. Moreover, we would not expect to see substantial Soviet mine warfare-capable naval assets [deleted] [deleted] situations. Most Soviet merchant ships, with minor modification, could be employed for mining operations but we believe their use in such a role [deleted]. Most Cuban naval, merchant and fishing ships and some aircraft could be modified [deleted].

CONUS MINECOUNTER MEASURES

Senator **Nunn**. Could we sweep mines in Boston, New London/Groton, New York, Philadelphia/Wilmington, Baltimore, Norfolk, Charleston, Savannah/Kings Bay, Jacksonville, and key west coast ports, all simultaneously should the need arise? How many U.S. ports could we keep open with minesweeping operations if we were simultaneously tasked to sweep the Straits of Hormuz, Malacca, and the Florida Straits?"

Admiral **Baggett**. [Deleted.]

OFFENSIVE MINE WARFARE

Senator **Nunn**. We depend on aircraft to deploy time-urgent minefields. All of the aircraft capable of performing this mission have other time-urgent war time missions. Do we have sufficient aircraft to sow minefields where needed at sea in the opening days of conflict? How many aircraft would be dedicated to this task?

Admiral **Baggett**. We have sufficient tactical air assets to sow minefields at sea in the opening days of conflict. [Deleted.]

MK-48 TORPEDO INVENTORY

Senator **Nunn**. Can you tell me what percentage of torpedoes for our submarines do we currently have on-hand today compared to what our DOD mandated 180-day wartime requirement is?

Admiral **Baggett**: The war reserve material requirement for "threat" munitions (e.g., torpedoes, mines, air-to-air and surface-to-air missiles) are not measured in days of expenditure as are "level-of-effort" munitions (e.g., air-to-ground ordnance, small and large caliber ammunition). The applicable threat munition requirement, as stated in section V.C.2. of DOD Defense Guidance for Fiscal Year 1986/1990 of 2 March 1984, is: By the end of fiscal year 1991 funded delivery period (FDP), procure sufficient munitions to kill 100 percent of the postulated threat allocated to U.S. targets. . . .

The programming level based upon this criteria is an inventory [deleted] that combatants will not run out of munitions before 100 percent of assigned targets are killed.

The MK-48 torpedo inventory is [deleted] and is projected to be [deleted] at the end of fiscal year 1985. The more capable MK-48 Advanced Capability (ADCAP) torpedo will enter service [deleted] As we introduce this weapon, the number of torpedoes required to deal with the assigned threat will be reduced because of the effectiveness ratio of the MK-48 ADCAP over the MK-48 [deleted] [deleted] Projected inventory status based upon requested funding support will result in an on-hand inventory [deleted] of MK-48 ADCAP equivalent torpedoes [deleted].

ALLIED MINECOUNTER MEASURES

Senator NUNN. How adequate are the minesweeping capabilities of our allies?

Admiral BAGGETT. With respect to total mine countermeasures (MCM) capability which encompasses both minesweeping and minehunting, [deleted]. NATO members have made significant improvements through their own initiative during the past four years. The United Kingdom is producing three MCM ship classes. France, Belgium and Netherlands are building the TRIPARTITE mine hunters. Germany has contracted to build a new class of mine hunters. Italy, with the strongest MCM force in the Mediterranean, is building the LERICI and GAETA MCM classes. Spain, Portugal, Greece, and Turkey have [deleted] ships [deleted] [deleted] Asian improvements have come mainly through [deleted] planning and procurement strategy. Japan is continuing its MSC building program and has completed a study on a MCM-1 equivalent. Malaysia and Korea have contracted for the LERICI class minehunters. Thailand has contracted for a German minehunter. Our allied MCM capability is improving as new classes of MCM ships are constructed and new MCM equipment developed. This investment in mine countermeasures ships and equipment is significant [deleted].

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

ASW BARRIER MISSION

Senator GLENN. If the authorized inventory objective is not met, this would appear to mean that additional ASW aircraft and submarines would have to be dedicated to the forward barrier mission. If this is true, wouldn't you say that Captor is a more cost effective asset for this mission than the other alternatives?

Admiral BAGGETT. [Deleted.]

The subject of cost effectiveness is not black and white. Typically, Captors are more cost effective [deleted] in short barriers [deleted]. For longer barriers [deleted] Captor cost effectiveness is highly target depth dependent, however analysis has indicated that a combination of Captor and other ASW assets [deleted] is more cost effective than any of the systems acting alone.

CAPTOR PROJECTION

Senator GLENN. I understand special testing is underway by the Navy which could dictate an increase to the currently approved inventory objective. The initial results of this testing apparently exceeded expectations. Would you comment on this testing and tell us in your opinion, if it would not be prudent to continue production of Captor mines?

Admiral BAGGETT. The Navy recognizes the tactical and strategic importance of the Arctic region to future war plans. In this regard, a number of Arctic war fighting initiatives are being supported, [deleted].

CAPTOR MINE

Senator GLENN. The Captor mine is the Free World's only deep water anti-submarine warfare (ASW) mine. We will not have a replacement for this mine before the turn of the century. Do you believe it is prudent to curtail production of this capability when the 1985 production will provide an inventory that is only 59 percent of the CNO's authorized inventory objective and will provide only 70 percent of our commitment to NATO for deep water ASW mines?

Admiral **Baggett**. The present inventory objective of [deleted] Captors is based in part on [deleted] Captors required to mine the Greenland-Iceland-Norway (GIN) barrier. [Deleted.] Termination of procurement of Captor after the fiscal year 1985 buy [deleted] is an affordability issue.

Senator **Cohen**. Admiral Butts, Admiral Baggett, thank you both very much.

This subcommittee is adjourned.

[Whereupon, at 4:04 p.m., the subcommittee adjourned, to reconvene upon the call of the Chair.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

THURSDAY, FEBRUARY 28, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

GLOBAL NAVAL COMMITMENTS

The subcommittee met in open session, pursuant to notice, at 2:07 p.m., in room SR-222, Senator William S. Cohen (chairman) presiding.

Present: Senators Cohen, Exon, and Glenn.

Staff present: Gordon G. Riggle, Mark B. Robinson, and John J. Hamre, professional staff members, and Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Allan Cameron, assistant to Senator Denton; John Rasmussen, assistant to Senator Gramm; William S. Lind, assistant to Senator Hart; and Jeffrey B. Subko, assistant to Senator Exon.

OPENING STATEMENT BY SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. Good afternoon.

Today we will hear testimony from Vice Adm. James A. Lyons, who is the Deputy Chief of Naval Operations for Plans, Policy, and Operations, on the subject of worldwide naval commitments and how those affect our force structure.

Admiral, on behalf of the subcommittee, I am happy to welcome you.

Since World War II no service has been so frequently called on to contain crises and deter escalation as the Navy and Marine Corps team. These commitments, both in the form of routine deployments and crisis response operations, have resulted in continuously high operating tempos.

In today's hearing we want to explore how these naval commitments are generated and whether they are sufficiently flexible to keep pace with evolving security needs. Additionally, we are interested in the consequences, both good and bad, of the Navy's operating pattern for such things as training, readiness, sustainability, and personnel retention.

Admiral Lyons, we look forward to your presentation. If it becomes necessary, we are prepared to close the hearing.

Admiral Lyons, you may proceed.

STATEMENT OF VICE ADM. JAMES A. LYONS, JR., DEPUTY CHIEF OF NAVAL OPERATIONS FOR PLANS, POLICY, AND OPERATIONS

Admiral Lyons. Thank you, Mr. Chairman.

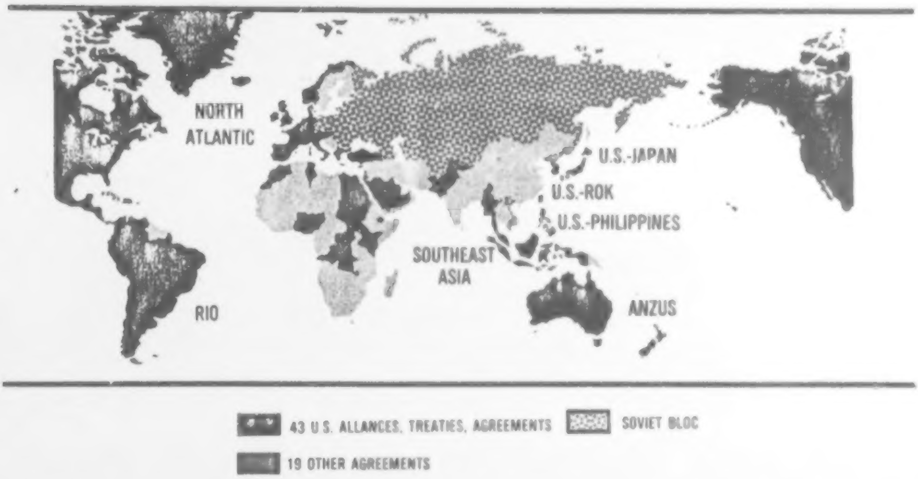
You have my prepared statement for the record, and I will simply give an overview.

This is our national military strategy.

NATIONAL MILITARY STRATEGY

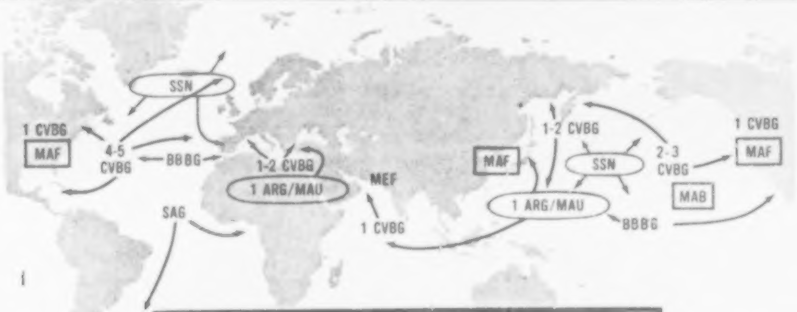
- DETERRENCE
- FORWARD DEFENSE
- GLOBAL COALITION WARFARE

ALLIANCES, TREATIES AND AGREEMENTS


NORTH ATLANTIC
U.S.-JAPAN
U.S.-ROK
U.S.-PHILIPPINES
SOUTHEAST ASIA
RIO
ANZUS
43 U.S. ALLIANCES, TREATIES, AGREEMENTS
SOVIET BLOC
19 OTHER AGREEMENTS

This viewgraph depicts the major alliances and treaties that are in existence today. The cornerstone of our overseas commitments in the North Atlantic evolves from our membership in NATO, and in the Western Pacific it is a product of the Korean crisis in the early 1950's. Our deployments in the Indian Ocean evolved—primarily, as they exist today—from the instability in Southwest Asia. As you know, our first deployments to the Persian Gulf were as a result of the Truman doctrine in the late 1940's.

USN/USMC ACTIVE PEACETIME POSTURE
MAJOR UNITS
FY 85


SSN
1 CVBG
MAF
4-5 CVBG
BBBG
1-2 CVBG
1 ARG/MAU
MEF
SAG
1 CVBG
MAF
1-2 CVBG
SSN
2-3 CVBG
1 CVBG
MAF
MAB
1 ARG/MAU
BBBG

	ATLANTIC FLEET	PACIFIC FLEET
AIRCRAFT CARRIERS	7	6
BATTLESHIPS	1	1
CRUIS./DESTR. /FRIGATES	104	93
ATTACK SUBMARINES	56	44
AMPHIBIOUS SHIPS	29	30
MARINE AMPHIBIOUS FORCES	1	2
PATROL SQUADRONS	12	12

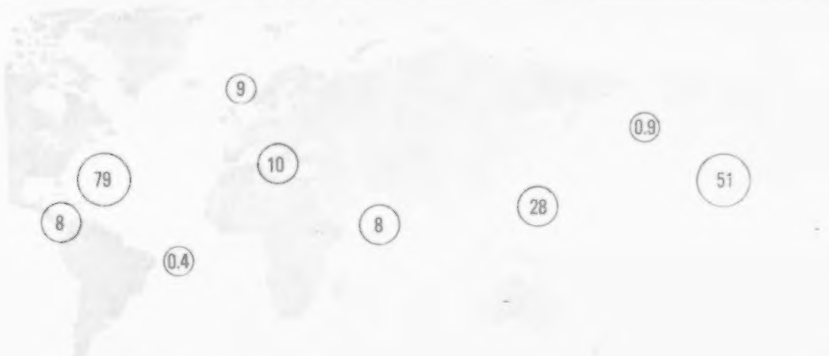
This graphic depicts our current deployments and our current force posture today. As you can see from the viewgraph, we have anywhere from one to two carriers in the Mediterranean supported by 12 to 14 destroyers. Additionally, there is a Marine amphibious landing team deployed in the region. In the Indian Ocean, we have a carrier battle group, and in the Persian Gulf we now maintain up to five ships. In the Western Pacific, we have anywhere from one to two carrier battle groups plus two amphibious ready groups.

The rest of the forces, we basically retain in and around CONUS, and we try to maintain a one and three rotation pattern.

Senator COHEN. Is there any way in which you would change the deployment pattern?

Admiral LYON. I am going to get to that.

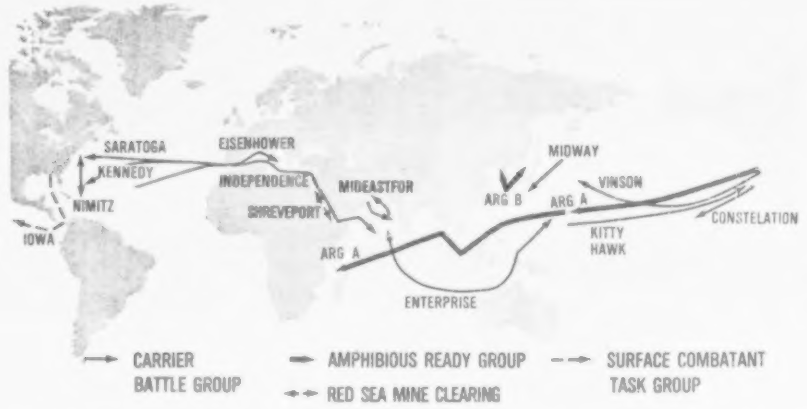
PEACETIME PRESENCE: FY 84
(IN THOUSANDS OF SHIP DAYS)


9
0.9
79
10
51
28
8
8
0.4

This viewgraph illustrates in thousands of ship days, how many days we are spending during a fiscal year in each of the regions discussed previously. The preponderance of ship days in the Western Pacific is due primarily to the number of ships we have deployed in the region and we have increased by a factor of five our ship days in the Indian Ocean.

I would say that our ship days in the Mediterranean have been basically stable for the last 4 or 5 years even though we did have to respond to certain crises, and I will get to that, shortly.

FORCE EMPLOYMENT
MAJOR ELEMENTS
SEP–NOV 84


SARATOGA
KENNEDY
NIMITZ
IOWA
EISENHOWER
INDEPENDENCE
SHREVEPORT
MIDEASTFOR
ARG A
ENTERPRISE
MIDWAY
ARG B
ARG A
VINSON
KITTY HAWK
CONSTELATION
CARRIER BATTLE GROUP
AMPHIBIOUS READY GROUP
RED SEA MINE CLEARING
SURFACE COMBATANT TASK GROUP

What I wanted to give you a feel for—which gets back to your previous question—is how we have changed some of these static deployment patterns and evolved into a concept of flexible ops. I took a snapshot covering a 4-month period last fall, and let me just walk you through.

The flex-ops which are very evident are the ones where we will roll a carrier from the Mediterranean, in this case *Independence*, into the Indian Ocean. At that point, we brought *Enterprise* into the Western Pacific, where it participated in the major fleet exercise, Fleet EX-85—the largest fleet exercise we have had in the Pacific since the end of World War II.

During the same timeframe, you will recall, we had a crisis in the Gulf of Suez and we had to respond to the mining that had happened there. This is what we did: we took *Shreveport*, took her out of the Mediterranean; deployed our mine sweeping helicopters from Norfolk, VA, flew them over in C-5 aircraft and married them up with the *Shreveport* in the Gulf of Suez where they conducted a very successful mine countermeasure operation.

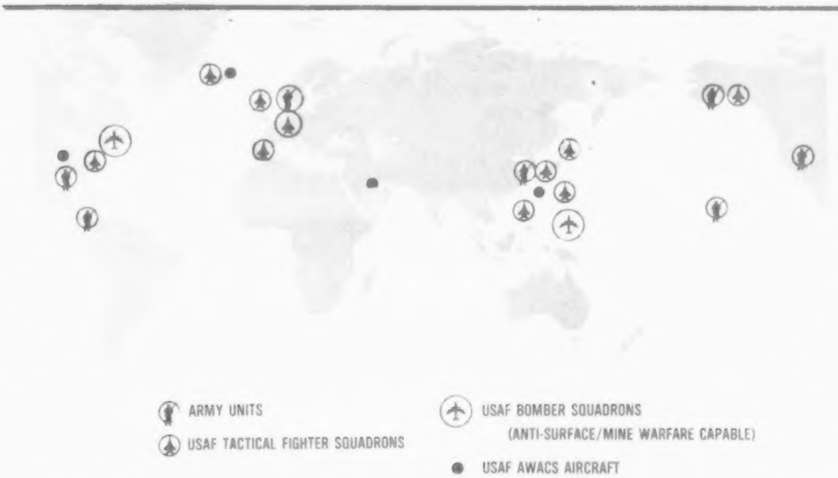
We are constantly rolling ships in and out of the Middle East Force. In this particular viewgraph, you can see the *Eisenhower* had rolled into the Mediterranean. As she was coming in, both *Kennedy* and *Saratoga* were going out and, as they were transiting across the Atlantic, we had *Nimitz* deploying into the Caribbean. At the same time, we had the *Iowa* conducting presence operations on the east coast of Central America, then going through the Panama Canal, and then operating on the west coast.

If you think back to the *New Jersey's* first deployment, we sent her out on a 2½ month shake down cruise in 1983. That 2½ month shake down cruise turned into an 11-month deployment. She went from the west coast of the United States to WESTPAC. We brought her back from WESTPAC, and put her down off the coast of Central America. In response to the deteriorating situation in Lebanon, we brought her through the Panama Canal and raced her across the Atlantic at 25 knots. During that whole period she spent something on the order of 330 days underway. That tempo of operations does have certain drawbacks, certainly from a crew morale standpoint—which I was happy to see was maintained at a high level, and that is because the crew understood the purpose of that deployment.

At the same time we have these carriers out here in the Indian Ocean, and today they are spending 85 percent of their time underway. That translates into over 100 days between port visits, and you can only do that for so long. As long as there is a purpose, and the crew understands what that purpose is, or what the objective is, you can maintain their morale while operating at a high pace. But there is a cost, and the cost is in a slow degradation in the material readiness of the ship.

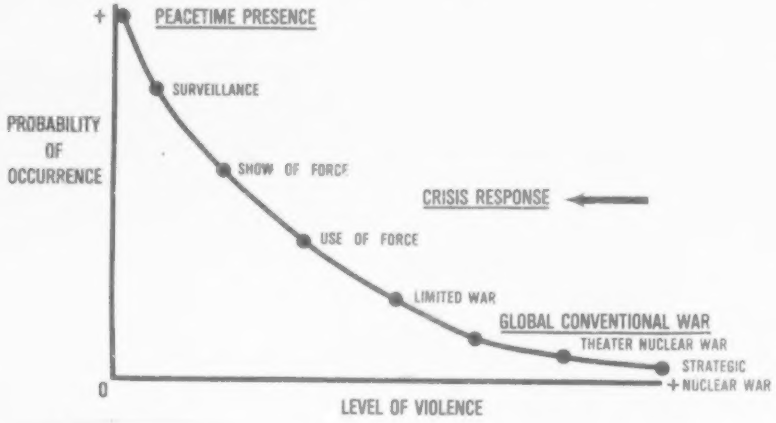
As I will talk of a little bit later, we are seeing—where we have had unusually high retention rates—we are now starting to see, through a number of factors, a slowing down. Our current pilot resignations during 1985 as compared to 1984 have increased by about 140 percent. Part of it is due to this high tempo of operations that we are sustaining today, and part of it is due to the airlines' increased hiring, of which 40 percent is met by military trained pilots.

PEACETIME POSTURE – ACTIVE U.S. ARMY/AIR FORCES
FY 85


ARMY UNITS
USAF TACTICAL FIGHTER SQUADRONS
USAF BOMBER SQUADRONS
(ANTI-SURFACE/MINE WARFARE CAPABLE)
USAF AWACS AIRCRAFT

In comparison to our force deployments—and I think you have seen this viewgraph before, but just to give you a feel again—I would like to touch briefly on peacetime posture of our Amry and Air Force. As you see, they are related to our naval commitments certainly, in the way that we deploy our forces. This works out very well from the standpoint of the joint and combined operations that we conduct in peacetime, which improves our proficiency on the one hand, and on the other hand improves the deterrence equation.

USES OF NAVAL POWER

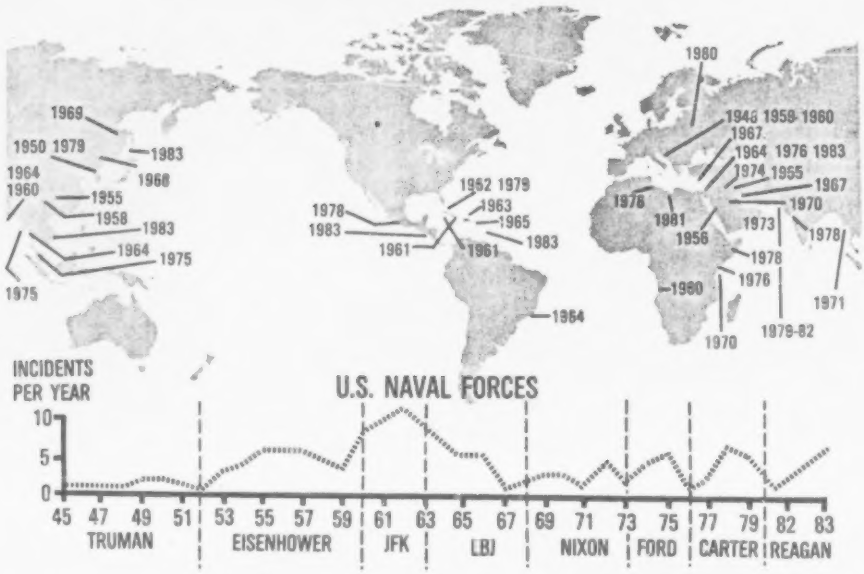


On this viewgraph, primarily we are talking today about this end of the spectrum (left end). Certainly, we have the forces for peacetime presence. We do not conduct surveillance. We do conduct a show of force—a demonstration of our commitment to our various alliances and treaties in our overseas deployments. And we certainly are there, as you have mentioned, to respond to crises. In fact, since the end of World War II, the Navy has responded to over 200 crises with our forward deployed force.

Not shown on this viewgraph is a dotted line that I should have included, and that is responding to state-sponsored acts of terrorism. The Navy has been at the leading edge in responding to terrorist activities. We played a significant role in responding to the barbaric and tragic shoot down of the KAL 007, the Korean airliner, in the Sea of Japan. It was the Navy that was on the scene and remained there for something on the order of 2½ months in that very tragic recovery operation.

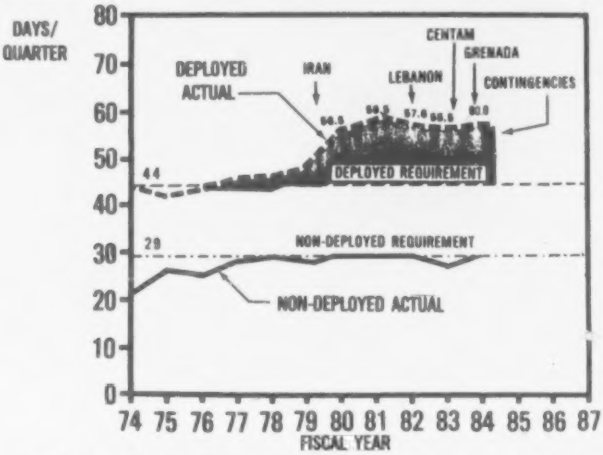
Of course, should deterrence fail, we are prepared to go through to the other side of the spectrum (right side).

CRISIS POINT, 1945 - 1984



This viewgraph depicts a sampling of the crises that we have had in the last 40 years—certainly, the more significant ones. It was the Navy that was the stabilizing force in the Suez crisis of 1956. We started in Lebanon in 1958, again in 1976, and again here in the recent past, in 1982 and 1983. We had the Cuban missile crisis of 1962. More recently, we had the Grenada rescue operation in the Caribbean and, of course, we have had the Korean conflict, the Vietnam, the Taiwan state patrols, et cetera, and, of course, as I previously mentioned, the recent Gulf of Suez mine clearing operation.

SHIP OPTEMPO



SINCE 1978 DEPLOYED FORCES HAVE BEEN OPERATED BEYOND READINESS REQUIREMENTS TO COVER CONTINGENCIES:

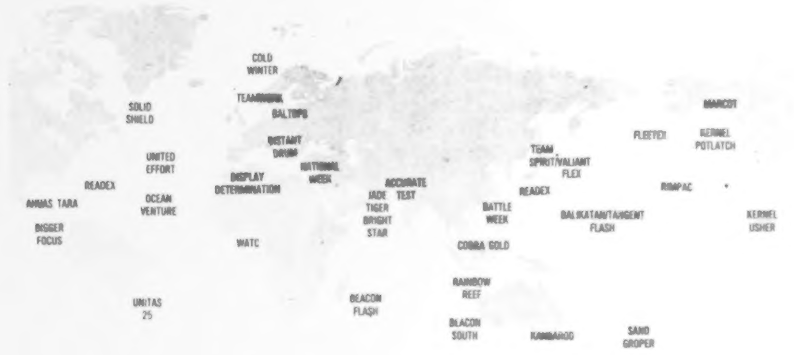
CONTINUOUS INDIAN OCEAN PRESENCE
CENTRAL AMERICA/JITTERY PROP
LEBANON
GRENADA

What I want to point out on this viewgraph is the way we plan and budget for our operations. Our primary focus is on this side of the viewgraph, which is 44 days, a figure we feel is the minimum, necessary underway time per quarter to maintain our level of readiness—our minimum acceptable level of readiness.

For the nondeployed ships, based on history and experience, we budget for 29 days. We are budgeted for 50.5 days for the deployed ships. This permits us to accept increased operations, to respond to crises, and to assist in humanitarian operations throughout the world when tragedies have occurred.

You will notice how the OPTEMPO increased as a result of Lebanon and the instability in Southwest Asia, and why we have had to come back to Congress for supplemental requests. For the Lebanon contingencies, we had to come back to you for a $45 million supplemental which accounts for all of the operations above this line. All of this is taken out of hide. The same way for the Grenada operation—which was somewhere between $11 and $12 million.

U.S. NAVY
MAJOR EXERCISES FY84

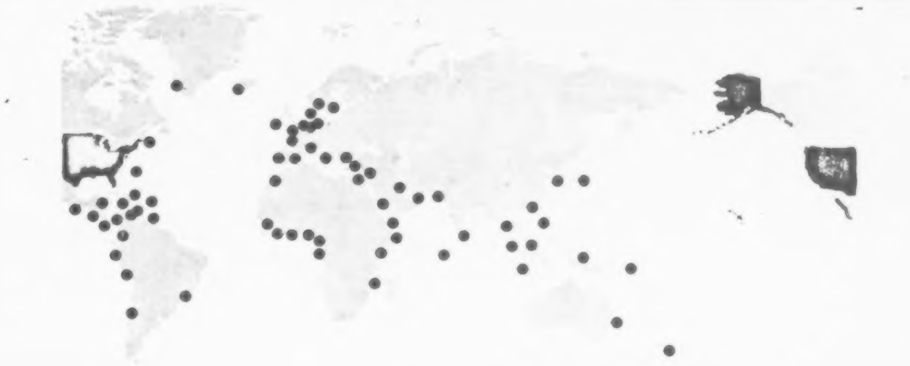

COLD WINTER
TEAMWORK
BALTOPS
SOLID SHIELD
DISTANT DRUM
UNITED EFFORT
NATIONAL WEEK
DISPLAY DETERMINATION
READEX
AHUAS TARA
OCEAN VENTURE
ACCURATE TEST
JADE TIGER
BRIGHT STAR
BIGGER FOCUS
WATC
UNITAS 25
BEACON FLASH
MARCOT
FLEETEX
KERNEL POTLATCH
TEAM SPIRIT/VALIANT FLEX
READEX
RIMPAC
BATTLE WEEK
BALIKATAN/TANGENT FLASH
KERNEL USHER
COBRA GOLD
RAINBOW REEF
BEACON SOUTH
KANGAROO
SAND GROPER

During our normal peacetime deployment, we participate in a significant number of exercises. During fiscal year 1984, we participated in over 54 major exercises, many of which are depicted on this viewgraph. We just don't go out and do these exercises for the sake of doing them, we have purpose in mind, and the purpose is to improve our interoperability in both joint and combined operations. If we display a level of proficiency, in effect, we improved the deterrence equation.

We can always count on the fact that when we do these exercises, there are going to be Soviets intermingled. Quite frankly, as a fleet commander, I used to welcome their participation for two reasons. First the services that they provided were free, we didn't have to pay for them. Second, we had a message to send, and the message was—if we operate with obvious proficiency in front of them then in effect we have improved the deterrence equation without firing a shot.

The way you get that message across is when they have a strike bomber come out, be it from the Kola Peninsula or Kamchatka, and he is intercepted five times before he ever gets to a weapons launch position. It has got to tell them something, perhaps that it just might be too hard. If we can get that message across, we have done a very good job.

U.S. NAVY PEACETIME PRESENCE
PORT VISITS FY 1984
(BY COUNTRY)



Of course, to a lot of people, the old adage remains—why do people join the Navy? They want to see the world. Last year, we visited 346 ports in 110 countries. Probably, the American sailor is one of the best goodwill ambassadors we have today.

When we put into these ports, it isn't just going to the nearest bar or saloon. We work with our embassies, especially in the Third World countries, to set up assistance programs or projects by which our sailors volunteer to go into the surrounding countryside to lend a hand, be it repairing a hospital or a school. We have our Project Hand Clasp where we are distributing thousands of books and materials that have been donated for us to give to these countries. There is a very positive spin-off from all of this.

At the same time that we are going in and out of these ports, we are conducting low key operations with the local forces, the local naval forces, raising their level of proficiency, and further enhancing the alliance and reassuring these countries that we can be there and be counted on.

Senator COHEN. Do you want to comment on New Zealand in that regard?

Admiral LYONS. I was wrong, I had said that the chairman would bring it up in the first 2 minutes.

That is a problem. Of course, as we have discussed previously, if you have an alliance, it has to be mutually beneficial. There are certain obligations that each partner of an alliance must be prepared to accept, otherwise you don't have an alliance. In this case, you can't expect our sailors to go out and spill their blood if they are not even allowed to come into the port—that is the bottom line. Certainly, it will put the Anzus Treaty Alliance in serious jeopardy should New Zealand continue with, in my view, a very myopic policy.

Let me say in concluding here. Although we have had a high tempo of operations, I think by every measure of readiness the slope of the curve is positive. We have had the best safety record in fiscal year 1984 that we have ever had. We have increased our safety performance something on the order of 23 percent, and that translates into a saving of $200-plus million.

The previous year, through the retention programs that have been supported by Congress, we were able to increase our retention rate of pilots as compared to the 1982 rates by a significant factor, and the same with our career petty officers, and all of this translates into a certain amount of savings and increased readiness.

As you know, it costs us almost $1 million to train a pilot, and the same way with our technically trained petty officers. Each and every one of those that we can retain on active duty is a significant upgrading in our readiness. We are very mindful of the fact that we are in competition for those people that we want to retain. And as I alluded to earlier, the trends are beginning to take a downturn.

Certainly, I have to say, from a family standpoint, the Navy has a very tough job in holding together the key resources that we feel are necessary to man the Navy today and in the future. As my wife constantly reminds me, the toughest job in the Navy is being a Navy wife. She is the one who brings up the family and does all of the things that everybody else takes for granted.

These are important factors that we must be sensitive to if we are to instill in our young sailors a positive view of the Navy and have them become career petty officers. Particularly if there are many attractive options on the outside; particularly, when the economy is on the upswing; particularly, when the airlines are making very attractive offers to our pilots. It takes a very dedicated individual to remain, and he is not doing it just for the pay, there are many other factors that come into play.

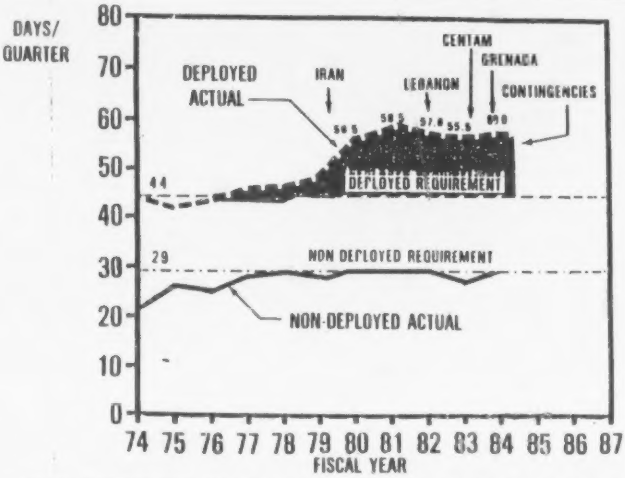
[The prepared statement of Adm. James A. Lyons, Jr., follows:]

PREPARED STATEMENT OF VICE ADM. JAMES A. LYONS, JR., DEPUTY CHIEF OF NAVAL OPERATIONS FOR PLANS, POLICY, AND OPERATORS

Mr. Chairman and Members of the subcommittee, I welcome this opportunity to discuss the global operations through which the Navy-Marine Corps team serves the national interest today around the world. You have been briefed previously on the Maritime Strategy. As you recall, it is that a coalition maritime strategy which integrates the varied objectives of naval operations in peacetime, during crisis, and in war into a statement of missions and tasks undertaken to enhance deterrence today. Central among those responsibilities is our commitment to sustain the forward deployment of about one-third of our forces to several key maritime theaters around the world.

One theme that I want to emphasize throughout our discussion today is that the extra commitments we are meeting in response to various third world crises, in addition to the normal posture of readiness commitments for deterrence and presence, have forced our operating tempo to new highs. Figure 1 illustrates this point. As you can see, we are operating overall at a pace which exceeds any we've been required to meet since Vietnam.

SHIP OPTEMPO



SINCE 1978 DEPLOYED FORCES HAVE BEEN OPERATED BEYOND READINESS REQUIREMENTS TO COVER CONTINGENCIES:

CONTINUOUS INDIAN OCEAN PRESENCE
CENTRAL AMERICA/JITTERY PROP
LEBANON
GRENADA

A second theme I will stress is that, as we described in the Maritime Strategy, all three categories of operations depicted in Figure 1 are linked in an overall pattern of deterrence.

I will begin with a synopsis of the national policy which mandates such a posture, then review our commitments and objectives in each major operating region. I will conclude with a description of the several kinds of responsibilities those forces are meeting on their deployed stations and with a brief discussion of readiness trends. I will be pleased to answer any questions you may have.

THE BASIS FOR GLOBAL COMMITMENTS

Our forward posture derives from the statutory requirements set by Congress and from the directives of the National Command Authority. As set forth in Title 10, U.S. Code, the mission of the U.S. Navy is "to be prepared to conduct prompt and sustained combat operations at sea in support of U.S. national interests." Consistent with that mission, Presidential guidance directs a peacetime strategy to maintain deterrence through a synergistic balance of sustainable, forward deployed forces and forces ready to deploy from home bases.

National security policy is, of course, reflected in the treaty and other alliance commitments of the United States. There are forty-three such commitments, under treaties and other security agreements, upon which our military strategy is largely based. In the case of NATO, the centerpiece of our collective security arrangements, our force commitments are formally reviewed by the alliance in the annual Defense Planning Questionnaire (DPQ) process.

A national military strategy is drawn from that aggregate of statute, policy, and alliance commitments and from an awareness of this nation's global economic and political interests. The strategy is fundamentally a strategy of deterrence; it is a strategy which depends on high readiness; it is a strategy of forward deployment; and it is a strategy of interdependence and interoperability with our allies and friends around the world.

The character and tempo of the global naval operations we mount in peacetime derive from those tenets of national military strategy. Today's naval operations have evolved in parallel with the national commitments this country has made in the forty years since World War II. Throughout the world, our naval deployments also reflect the varied and emerging challenges to our vital interests posed by the Soviet maritime threat and a variety of regional instabilities.

The common thread through these elements of our deterrent strategy is dependence on a forward and global presence. Owing to the flexible and mobile nature of sea power, that global presence consists in large measure of forward U.S. naval operations.

EVOLVING NAVAL COMMITMENTS

Our peacetime deployment patterns were established following World War II and during the Korean War. Our modern deployments to the Mediterranean and the Western Pacific for example, date from the late 1940's and early 1950's. In the case of the Mediterranean, our deployments were driven by the crises in the Eastern Mediterranean in the late 40's and our concern for global readiness in the anxious days of the Korean War. In the early 1950's we codified our deployments to the Mediterranean within our formal commitments to NATO. During the same period, the Korean War and the tense truce in the Pacific in the decade following the war set the early pattern for our deployments to the Western Pacific.

Since then our deployment patterns have changed as our policies have evolved with the global situation. Throughout, our attention has centered on five critical maritime theaters: the Mediterranean Sea, the Atlantic and Norwegian Sea, the Western Pacific, the Indian Ocean, and the waters of Latin America. Our presence in these areas is dictated by our vital national interests. It reflects our commitment to treaties, our determination to protect access to strategic materials, and our readiness to conduct sustained combat operations as required.

Within the past decade, Soviet military expansion in Cuba and Latin America, Libya, Syria, Aden, Ethiopia, Angola, and Vietnam has accentuated the need to sustain a credible naval presence around the globe. It is clearly vital to the United States and our allies that we not concede control of any vital maritime areas to the Soviet Union. We must maintain the capability, in cooperation with our allies, to offset and neutralize competing Soviet presence in these critical maritime theaters across the spectrum of crisis and conflict.

The Soviets exercise that presence and influence in two ways. They continue to act through client states and surrogates to further their ambitions. Increasingly, they are also acting directly through what we classify as "out of area" naval deployments. Since the mid-sixties, the Soviets have established permanent naval presence in the Mediterranean, Red Sea, Indian Ocean, South China Sea, and off West Africa. In addition, they maintain a periodic presence in the Carribean. Particularly ominous is their success in establishing forward maintenance and logistics facilities in several areas.

Recently the Soviets have mounted a full court press in the island areas of the Southwestern Pacific. Following a precedent, this is accomplished first by gaining access through their fishing fleet and by arranging for economic penetration via trade treaties. As in other areas of the world, their modern, state-subsidized merchant fleet is a further, visible signal of Soviet presence and interest.

Backing up this demonstration of the naval muscle and global reach is a large shipbuilding program and an evern larger shipbuilding capacity. With three VSTOL carriers already operational, the Soviets are now constructing a nuclear powered carrier for conventional take off and landing aircraft. In contrast to our two shipyards which are capable of building nuclear attack submarines and the one which is qualified to build the Trident SSBN's, the Soviets today are producing eight to ten submarines a year in four modern shipbuilding yards. We estimate that they are capable of delivering twenty to thirty submarines a year. The eighteen large shipyards in the Soviet Union are in addition to the sophisticated shipbuilding capabilities of several East European satellites. The Director of Naval Intelligence has mentioned in his recent testimony, the example of the Marshal Nedelin, which is now operational in the Soviet Pacific Fleet. That highly capable naval command and control vessel which they call "space event support ship," will clearly be seen around the Pacific Basin as a further evidence of Soviet shipbuilding and sophisticated capabilities.

The growing reach of the Soviet Navy complements traditional operations by combatants in the Norwegian Sea and Western Pacific as well as the permanent ballistic missile submarine patrols off the East and West coasts of the United States. In addition to their historical preoccupation with the defense of home waters, the Soviets have clearly identified the ocean areas which are vitally important to the U.S. and its allies. Their patterns of naval deployment and forward basing suggest a determination to challenge and, if necessary, disrupt our access to these areas. These are challenges the U.S. Navy takes very seriously.

I will now briefly highlight our own evolving naval postures in each of the five major areas of responsibility.

Mediterranean Sea.—The most longstanding of our postwar deterrence commitments is the NATO alliance. In keeping with those obligations, we have maintained a continuous naval presence with the Sixth Fleet in the Mediterranean since the end of World War II. The naval forces of the nations in southern NATO join us in that peacekeeping presence. Other allied naval units also occasionally train with us in the Mediterranean.

Overlapping in this region are the continuing requirement to bolster NATO's deterrence to Soviet expansion and influence, and the requirement to deter and confine the frequent crises arising in the perenially troubled Middle East and North African regions. Countering the destabilizing influence of Quadaffi's Libya and being ready to support Israel, and other friendly countries in the Middle East peace process are only the latest manifestations of our commitments in the Mediterranean. Recall that it was President Jefferson's response to North African piracy which led to our initial deployment of ships and Marines to the Barbary Coast in 1803. Most recently, off Lebanon, the Sixth Fleet was called on to maintain a continuous amphibious Task Group and Battle Group presence for almost 18 months to stabilize the situation in Lebanon.

For decades we met our NATO commitments in the Med with a sizeable presence including two aircraft carrier battle groups augmented by extra forces in time of crisis. In 1980, we modified the NATO commitment to permit one of those carriers to deploy to the Indian Ocean. This modification to our traditional Mediterranean presence reflects our conviction that NATO and the western alliance share vital interests in securing access to oil from the Persian Gulf. The burden of keeping a carrier presence in that region is shared by our NATO-committed forces. Thus, on an annual basis, we currently sustain one carrier battle group in the Med for the full year, and raise the level to two for about four of those twelve months. There are also, of course, nuclear attack submarines, an amphibious ready group which includes about 1800 marines, maritime patrol aircraft and logistics forces deployed there.

North Atlantic and Norwegian Sea.—The northern flank of NATO requires a U.S. presence as well. In comparison with the Mediterranean, the naval commitment in the North Atlantic and Norwegian Sea is entirely in support of the NATO deterrent. This region has been a major theater in past wars and would be again were deterrence to fail. The lifeliness of the transatlantic partnership must be defended and secured. As before, the relative economic and political stability of the region, however, has not required U.S. naval crisis response actions. As a result, operations by the U.S. SECOND FLEET are characterized by deterrent and readiness-sustaining exercises with our allies. We operate significant numbers of submarines and Maritime Patrol Aircraft on routine deterrence patrols in that area. Included in that commitment is one destroyer- or frigate-type ship which routinely operates with the multi-national Standing Naval Force Atlantic (STANAVFORLANT). Naval forces of our NATO allies also operate in the area, though not in the strength that the Soviets achieve routinely in the northern reaches of the Norwegian Sea.

In recent years, our sharpened understanding of Soviet naval strategy and the massive build-up of Soviet naval forces have combined to make the Norwegian Sea an area of special concern to us. For the Soviets, the Norwegian Sea is vital as the gateway to the Atlantic for their northern fleet. We must have the capability to join the battle of the Norwegian Sea in order to ensure the survival of the Northern Flank as well as to deny the Soviets this gateway in a general war. Moreover, our ability to protect the reinforcement and resupply of the NATO alliance in a major conflict depends heavily on control of the Norwegian Sea. The key to victory in future battle of the Atlantic may be the prompt attainment of superiority in the Norwegian Sea by NATO.

In maintaining a reasonable peacetime rotation rate, we do not have the assets to maintain a continuous carrier battle group presence in peacetime in this important region and sustain our current commitments to the other key theaters while ensuring readiness to surge forces forward in response to crisis. We would certainly need to sail several to this flank to reinforce deterrence in grave crisis and attain the posture necessary to ensure maritime superiority in a NATO-Warsaw Pact confrontation. Our routine submarine and aircraft patrols form a baseline posture to which an occasional NATO maritime exercise is added. I am frankly concerned that we do not stage sizeable U.S. and NATO maritime exercises in the region often enough to optimize our readiness for the complex operations which would be required in the event of war. We must also have our operational and logistics concepts in view of the harsh conditions in those distant, stormy waters. In a moment, I will describe just such an exercise, Teamwork-84, which did meet those objectives.

To compensate for the lack of regular battle group presence and for the lack of amphibious ships, we have two special efforts underway with Norway. We are not prepositioning equipment in Norway so that by 1989 we will be able to airlift a Marine Air-Ground Task Force (MAGTF) into Norway to marry up with that equipment and join other allied forces to deter any Soviet move to seize Northern Norway—one of the key objectives we estimate they would have were they to launch an attack on NATO. Secondly, we engage in regular bilateral talks with Norway to share assessments of the threat, and to design collective actions we can take to reinforce deterrence in the region.

Of course, the Maritime Prepositioning Ships (MPS) program which will give us three sets of equipment prepositioned afloat by the end of 1986 offers additional options. MPS Set One, to be kept ready in the Atlantic, will provide an important new flexibility should we need to reinforce this flank even further.

Indian Ocean and the Persian Gulf.—In the Indian Ocean area, our continuous presence dates back to 1948 and the Truman doctrine. In recognition of the importance of the region and in the face of Soviet exploitation of the region's instability, the Middle East force was established. That force which was increased to a total of five ships, remained in place as the British gradually withdrew their own presence. Oil from the Gulf states has become an increasingly vital resource for the Western alliance, and the region has ben plagued by successive crises. Recall that under the Shah, Iran was the cornerstone of our national security policy in Southwest Asia. The Iranian revolution and the Soviet invasion of Afghanistan have placed us once again in the position of having to rely heavily on deployable U.S.naval forces to guard our interests in the region. Today, the modern ships we assign to that duty operate in the Straits of Hormuz, and patrol the waters of the Gulf.

Our practice of backing up that small force with occasional patrols into the Indian Ocean for presence or in response to regional crises change six years ago. Responding to a border crisis between the Yemens in February 1979, we deployed a carrier battle group into the area. Following the Iranian hostage crisis and the Soviet invasion of Afghanistan, that deployment was quickly raised to two battle groups, plus submarines, maritime patrol aircraft, and logistics support. In May 1982, after the hostages were released we moved to flexible operations concepts which I mentioned in the context of our Mediterranean commitments, we reduced our steady-state presence to one carrier battle group. This remains our posture today. We also have maintained at Diego Garcia (since 1980), the afloat Near Term Prepositioning Force with equipment and supplies to outfit U.S. Marine Corps and other forces.

These Indian Ocean and Persian Gulf forces are an important reassurance to all our allies, to the moderate Arab states, and to our other friends in the region that the United States is committed to peace and stability and security in Southwest Asia. That commitment, which must include a sober recognition of the need to deter Iran's attempts to destabilize the region, will most likely continue into the indefinite future.

Oil will remain a vital resource and, as the President has stated, we stand ready to assure its unimpeded flow through the Straits of Hormuz. There is no quick end in sight to Iran's use of terrorism, or to the Iran-Iraq War, or to the serious threat to Pakistan in light of the massive and brutal Soviet campaign in Afghanistan.

Western Pacific Ocean.—In the Western Pacific, an area of paramount importance for our international trade and commerce and the integrity of our Asian alliances, we maintain an average annual presence of 1.4 carrier battle groups plus afloat Marine, submarine, maritime patrol aircraft, and logistics forces. Our presence in the Western Pacific has been continuous since World War II when the wartime Seventh Fleet was retained for occupation duties. As with the Mediterranean, our battle group presence in the Western Pacific has been reduced from the permanent posture of the mid-70s. We must keep in mind that the Western Pacific has been the setting for the largest military operations since World War II: The Korean and Vietnam conflicts. We continue to maintain a readiness to meet long standing commitments in support of the Republic of Korea.

The growth of Soviet naval power in the Pacific has been truly remarkable. A cornerstone of our cooperation with the People's Republic of China is a shared determination to contain the expansion of Soviet power in the Pacific region. For the Chinese, our naval presence in the Western Pacific is a manifestation of that determination as it is for our friends in the ASEAN group.

Regional crises continue to threaten the Far East. In addition to the always dangerous situations in Korea, the insurgency in the Phillipines and Vietnam's operations in Cambodia deserve serious attention.

South Altantic Ocean, Caribbean Sea, and Latin America.—Finally, a growing commitment much closer to home. Our country's ties with the nations of Central and South America have been supported by naval presence operations which date from the last century. In 1960, in an operation initiated by Admiral Arleigh Burke, we began an annual series of training cruises around South America called Operation UNITAS. Those continue to this day. That operation offers a visible reminder of U.S. commitment to the security and stability of the Western Hemisphere. UNITAS has nourished warm relationships with the Latin American navies and has proven invaluable in helping them keep their tactics up to date and the procedures compatible with ours.

In recent years, as you know, our naval commitments in this region have grown rapidly in response to the insurgencies in Central America, the continued Soviet and Cuban exploitation of regional problems, and the burgeoning drug trade across the Caribbean Sea and up the West Coast of Central America. In addition to our frequent use of the Caribbean for training, we are now sustaining a significant presence, often including a battleship or carrier battle group, on watch in the Caribbean and off the Pacific Coast of Central America. Our prompt and forceful action in Grenada to counter hostile forces was an example of the capability of ready naval forces to react quickly and to send a broader signal of U.S. resolve to a region whose problems are continuously exploited by Cuba and the Soviet Union. We must continue demonstrating that resolve with a visible commitment to the friendly nations of Latin America.

THE NATURE OF OPERATIONS TO MEET THOSE COMMITMENTS

Next, I would like to outline for you the several types of benefits our forward operations provide. Although we can talk about them singly, these elements of naval presence actually blend in practice.

Forward Posture.—As I mentioned at the outset, our national military strategy relies in large part on sustaining about one third of our major naval forces in forward areas. This normal pattern of operations strikes a necessary balance between maintenance and basic training in home waters and our need to respond immediately with surge forces in a period of rising tension. It is immediate readiness which confers leverage to keep regional crises from breaking out into conflicts. The constant rotation of all our major units through overseas deployment is also an important means to confirm our combat and logistics forces' achievement of the high readiness standards they must meet day in and day out.

Presence.—While often seen as the lower end of the spectrum of benefits derived from that forward posture, the visible and reassuring presence of U.S. naval forces in key regions around the globe is an important reason for our deployments. The presence of our forces on the high seas serves as a visible demonstration of American interest and resolve. Friendly navies have opportunities to raise their own readiness by training with us, and that interaction is critical to achieving the cooperation and interoperability we would need for deterrence in grave crisis or for successful combat operations as allies in wartime.

A special ingredient of naval presence is the port visit schedule for our ships on deployment. In 1984 U.S. sailors and marines went ashore in 346 ports in 110 countries. These routine visits allow crew rest and recreation, of course. But they do more: for many citizens of our host nations, these fine young Americans are roving ambassadors who leave indelible impressions of the best in American attitudes and values. These visits also offer opportunities for direct, on the job training with the naval officers and crews of the vistied country and for frequent bilateral training at sea as our units arrive and depart. In port, our crews often help local schools and orphanages with physical repairs and painting of public buildings, and we frequently provide humanitarian assistance such as blankets, medical supplies, and other materials under our PROJECT HANDCLASP.

Crisis Response.—Naval forces have been called in on regional crises more than two hundred times since the end of World War II. Today we have forces off Latin America, in the Mediterranean, in the Indian Ocean and Persian Gulf, and in the Western Pacific where ongoing crises and conflicts will certainly again require our involvement. As one looks back through the lessons of history and constructs strategies for the future, it is clear that deterrence of big wars depends on the control and deescalation of little crises. Our naval forces are among the principal instruments of this nation's capacity to moderate and contain those local problems and to keep them from cascading into a world war-threatening confrontation with the Soviet bloc. As you recall from the opening posture statements to the full Committee by Admiral Watkins and General Vessey, there were last year over 30 armed conflicts in the world with millions of people involved or affected. The continued proliferation of high technology weaponry and the advent of state-sponsored terrorism continue to raise the risks in these third world hot spots.

Deterrence.—I have mentioned the relationship between the application of naval force to moderate and contain crises in the third world and the prevention of those crises from being linked together into a global risk of war. There is yet another type of deterrence leverage gained from our forward deployments. That is the kind of direct deterrence achieved by demonstrations both of our resolve and of our factual capability to fight in vital maritime theaters with our Allies. Further, it is precisely our naval forces which can be moved forward rapidly on the high seas in moments of grave crisis and when unilateral action is warranted.

Major Exercises.—Finally, an important benefit of our forward deployment posture is our fleet exercise program.

The ability to fight effectively within a coalition depends fundamentally on extensive and sophisticated training evolutions. Throughout their training cycle, naval forces participate in a demanding series of exercises with allies and sister services. These exercises contribute to cohesion, enabling U.S. naval units to operate routinely with our sister Services and with Allied forces. They also allow us to test and update our joint and combined procedures. The ability of the allies to operate their forces in a cooperative, complementary manner provides a continuous deterrent signal to the Soviets who are ever-present observers in all our major exercises. Smaller, potentially hostile states also recognize the deterrent force demonstrated by our exercises. Exercises, the true measure of our operational capabilities, are important sources of lessons for our strategy design as well. I will describe just a few of the exercises we conducted last year to illustrate these ideas.

FLEETEX-85, recently completed in the Northwest Pacific, was the largest fleet exercise in that area since World War II. U.S. Air Force and Canadian forces operating with five Navy carrier battle groups comprising 87 ships. In all, 40,000 personnel participated, training the way we expect them to fight. Japanese Maritime Self Defense Force observers were present and the exercising anti-submarine warfare forces were afforded an opportunity to work at sea with JMSDF units at the same time. This major exercise demonstrated our ability, in cooperation with the Air Force and our allies, to achieve the key objectives which are essential for the success of our military strategy in the Pacific.

In the Atlantic, Teamwork-84 was one of the largest amphibious exercises conducted since World War II. The exercise was designed to test NATO plans for the reinforcement of Northern Europe and our ability to counter the multi-dimensional threat to this type of reinforcement. Of particular note, the exercise was accompanied by a sizeable Soviet submarine response providing a "real-world" threat simulation as a complement to the exercise opposition. A second benefit of Teamwork-84 was the experience with the weather and sea conditions which are likely to obtain in a real contingency. Most of our peacetime commitments tend to place our forces in more temperate waters. It is imperative that we conduct training in those regions where we may be called upon to confront and deter the Soviets, or ultimately to fight. This exercise provided a unique opportunity to examine and refine the tactics we would use in an actual situation. Based upon the Soviet response it elicited, Teamwork-84 made a lasting impression of NATO capability and interoperability.

Another example comes from the Persian Gulf. Seven or eight times per year we conduct a Beacon Flash exercise with the Sultan of Oman's Air Force. The objective of these Beacon Flash exercises is to increase CVBG readiness by conducting training in air-to-air combat with dissimilar aircraft (Omani Jaguars and Hunters), air to ground strike training, air defense, and command and control. After-action reports from our commanders in the Indian Ocean conclude that these exercises are the "best training a carrier battle group can get while on station in the Northern Arabian Sea." The training also provides a tangible signal of our intent to cooperate with friendly countries in the region. In this regard, I must point out that the oil tanker routes through the strategic Strait of Hormuz lie in Oman's territorial waters.

Another example in the Middle East: Exercise Seawind was a three day Egyptian-United States exercise conducted in November of last year. It was designed to rehearse participating units in a multi-threat environment in both offensive and defensive missions. Included were joint Egyptian-U.S. Navy strike warfare training as well as anti-submarine, anti-surface, and basic seamanship evolutions. Seawind proved to be highly beneficial both in terms of increasing battle group readiness and improved U.S.-Egyptian interoperability.

The foregoing exercises are just a few samples from the total annual exercise program. The presence of common equipment in NATO and Japanese navies dramatically improves our ability to support our allies as we cooperate in naval maneuvers. We have a long way to go to improve that interoperability in certain areas, but we are well along the way. I pointed out that the Oman and Egyptian exercises to underscore the fact that the presence of dissimilar equipment does not preclude coordinated operations. One goal of our foreign military sales program is to improve the interoperability of our forces with our allies.

Operating Tempo and Readiness

I will turn briefly now to the scheduling and readiness considerations behind the Navy's ability to meet our global commitments. Our experience and analysis have set some standards for the pace at which our major forces should operate to balance their overall readiness. We need to keep our ships' material readiness high over services lives which sometimes exceed forty years. Similarly, we must balance the pace we ask of our crews so we do not burn out them and their families.

As an overall standard, then, we try to deploy our ships about one third of their ready time between overhauls or scheduled major maintenance periods in home port. That is, a crew would normally alternate between about six months deployed away from their home port and twelve months in that port or operating in local training areas. Figure 1 illustrated the operating tempo standards to which we budget. When deployed we would ideally like our ships to operate about 44 days per quarter. For training between deployments our current standard is on average of 29 days across the various ship types.

As you saw in Figure 1, current contingency response requirements have pushed our tempo to about 60 days per quarter for the deployed—136 per cost of the "normal," budgeted pace. We are meeting those commitments now. I would like to discuss further the impact these operations are having on the 84 ships, about 52 aircraft squadrons, and more than 110 thousand sailors and Marines deployed and on watch outside the United States today.

Tempo of Operations.—The Navy has responded to regional crises more than 200 times since World War II. It is impossible to predict when and where the next crisis will occur, but our current forward presence does permit us to respond to these crises promptly. Our considerable experience in responding to crises, and the history of serious crises in the postwar era underscore the importance of rapid reaction. The sooner credible military power can be brought to bear, the more likely a crisis can be controlled and U.S. and allied interests protected.

In recent years, naval forces have responded to crises in the Persian Gulf, Lebanon, Grenada, the Red Sea, and Central America. In the Iranian crisis, and in Grenada and Lebanon, we evacuated American citizens to safety. The Persian Gulf and Central American crises have resulted in a continuing contingency response requirement for our forces. Although we are able to sustain our normal peacetime presence in other areas, emerging crises have resulted in increased operational tempo for our forces. Despite adding some 50 ships to our operational fleet, over the past four years our operating tempo has been higher than at any time since Vietnam. I point this out as evidence that operating tempo is the product of long-standing deterrence responsibilities and of operations dictated by third world contingencies. In 1984, Carrier Battle Group deployments to the North Arabian Sea resulted in an operating tempo requiring 85 percent of deployed time at sea and 101 days between port visits. This compares to the 1979 requirements of 63 percent of deployed time at sea and a 24 day average between port visits. An excellent example of peacetime OPTEMPO being exacerbated by third world contingencies was the deployments of the battleship NEW JERSEY during 1983 and 1984. Leaving on what was to have been a 2½ month shakedown cruise, she was ordered first to Central America for several weeks and then proceeded non-stop to Beirut in support of the Marines ashore. In all, she spent 322 days underway, with only 3 port visits, and travelled some 76,000 miles—some shakedown cruise!

Our global naval commitments require quality as well as quantity. Responding to regional crises requires the Navy to send a force capable of sustained and effective operations in threatening areas. The rapid growth of new, high technology weaponry in the armories of the third world nations requires U.S. forces deployed to a crisis region to have the quality systems necessary to meeting an expanding threat in what we heretofore regarded as low-threat areas. Effective deterrence requires that forces employed be adequate to the threat. The emergence of state sponsored terrorism has also increased the need for capable units able to counter sophisticated terrorist acts before the attacks are consumated. Our deployed forces must be ready to execute a pro-active strategy against state-sponsored terrorism. This requires up-to-date intelligence and careful planning. Most importantly, potential terrorists must recognize the risks they are running in continuing the cycle of terror.

This requirement for alert, capable platforms exacerbates the problem of higher than desired OPTEMPO. The occurrence, duration, and amount of force required for crises cannot be anticipated. Accordingly, we are not permitted to include such costs in our budget estimates. Per OMB ground rules, we must ask you for a supplemental appropriation to cover such unprogrammed costs when they are incurred. As an example, our response to the Lebanon crisis dictated a request for a supplemental appropriation in our fiscal year -84 budget of $44.85 Million to cover additional expenditures for fuel and opther ship, aircraft, maintenance, and other operating costs. For our operations in Grenada, an additional $11.25 Million was requested.

There are other costs as well. Increasing the time in a deployed status for a typical ship often results in longer periods without complete maintenance support. The increased tempo also places further and increased demands on our hard working sailors and their families as they endure periods of long separation.

Flexible Operations.—A major goal of the U.S. Navy over the next few years is to make a substantial reduction in the excessive time that naval personnel must spend away from their home port. As we progress toward a 600-ship Navy, including fifteen deployable carriers, we will be more capable of meeting our commitments as we sustain positive trends in overall readiness figures—readiness which has its foundation in the retention of qualified personnel.

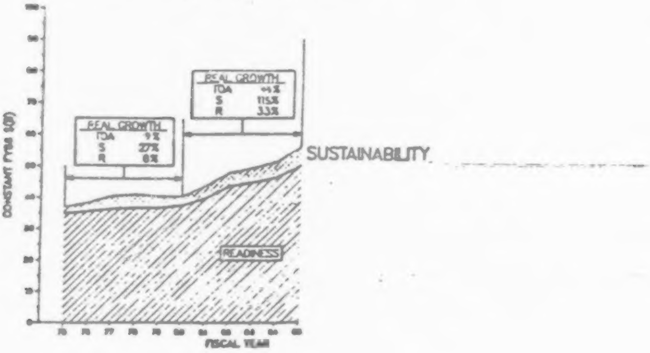
Increases in the numbers and combat capabilities of our ships will allow us more flexibility to support peacetime and crisis response commitments. The reactivation of four battleships and their constitution into battleship battle groups are a particularly positive step in this regard. Although the battleship battle groups cannot duplicate the enormous and multifaceted strength of a carrier battle group, there is a very positive complementarity in their capabilities. We will be able to interchange some of their mission assignments giving us an important increase in our flexibility and in our ability to surge ready forces forward rapidly in crises.

Two years ago we introduced a concept flexible operations approach to carrier battle group scheduling. I mentioned earlier examples of the flexible operations practice which has allowed us to drop below the traditional two carrier commitments in the Mediterranean and the Western Pacific in order to meet the Indian Ocean commitments.

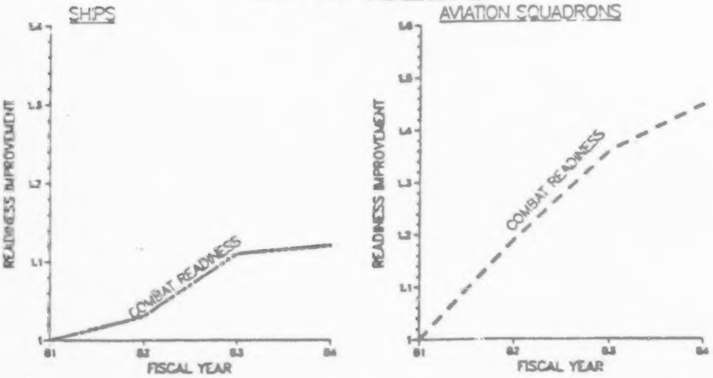
The objective of FLEXOPS is to modify our deployment patterns to improve our surge capability, permit more single and multiple carrier battle group operations in all the vital maritime areas and reduce the predictability of our deployments. The expansion of the fleet and the reactivation of an improved capability to respond to crises. Flexible operations should also increase the value of our day-to-day presence by reducing the predictability of our fleet movements and improving our ability to surge our forces forward. Additionally, if the world situation permits, some reductions in OPTEMPO can be realized.

Readiness and Sustainability.—Obviously, there is a close connection between the operating tempo dictated by our commitments and the readiness of our naval forces. I will not go into great detail on this subject, as you will be presented further information as you continue hearings on the budget proposal. I would like to state emphatically that the fleet is more ready to go in harm's way than at any time in recent peacetime history and that our ability to sustain operations is fast improving. Four years of your support and the publics backing have produced a remarkable turnaround. Figures 2 and 3, Table 1 follow.

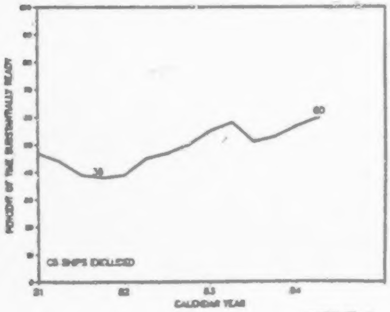
READINESS & SUSTAINABILITY FUNDING
OCTOBER 84 FYDP



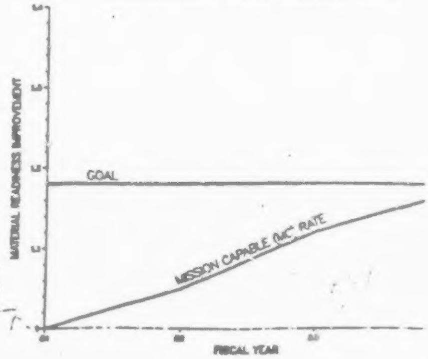
READINESS IMPROVEMENT

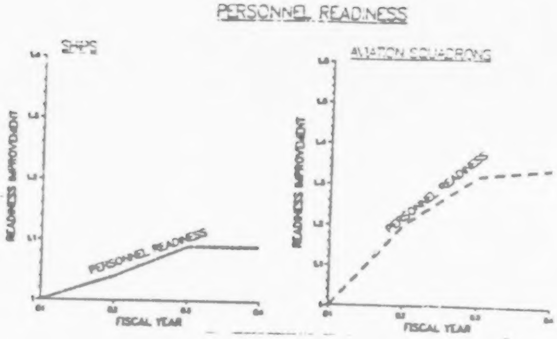


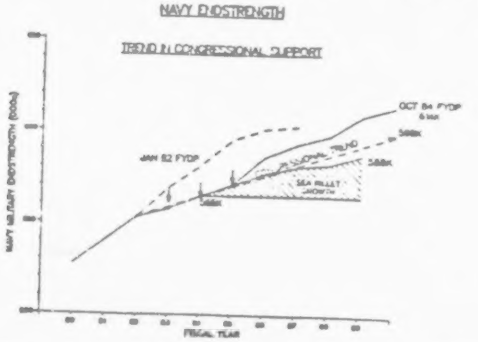
TIME FREE OF C3/C4 CASREPS
SURFACE COMBATANTS

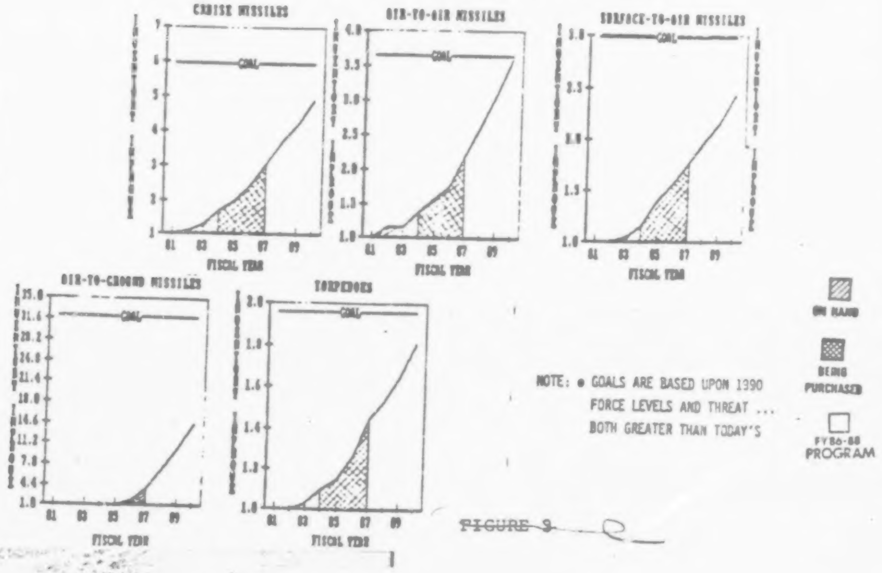


PEACETIME AIRCRAFT
MATERIAL READINESS IMPROVEMENTS









NOTE: • GOALS ARE BASED UPON 1990
FORCE LEVELS AND THREAT ...
BOTH GREATER THAN TODAY'S

~~FIGURE 9~~ C

TABLE 1

OFFICER RETENTION

	FY 82	FY 83	FY 84
SURFACE	43%	45%	50%
PILOT	49%	58%	56%
NAVAL FLIGHT OFFICER	73%	74%	81%
NUCLEAR SUBMARINE	39%	46%	47%
GENERAL UNRESTRICTED LINE	44%	60%	59%

ENLISTED RETENTION

	FY 82	FY 83	FY 84
FIRST REENLISTMENT (4-6 YRS)	50%	56%	58%
SECOND REENLISTMENT (8-10 YRS)	63%	65%	58%
THIRD REENLISTMENT (10+ YRS)	95%	97%	95%

Demonstratable improvements have been made in naval warfighting readiness and sustainability. Figures 2 and 3 and Table 1 illustrate the following points:

The number of ships reporting combat ready status is up 15 percent since 1981, the number of aviation squadrons up 53 percent.

Operating time free of serious Casualty Reports (CASREPs), a leading indicator of ship material readiness, is up 58 percent.

Aircraft material readiness, measured by Mission Capable (MC) rates, improved 19 percent since 1981.

This progress can be traced directly to improved manning of ships and aviation squadrons. Fleet manning has risen to 95 percent of authorized billets. The number of ships reporting combat ready status in personnel is up 14 percent since 1981; the number of aviation squadrons up 40 percent.

Increased funding for munitions is taking effect. Weapons bought with fiscal year 82 and fiscal year 83 funds are beginning to arrive and improvements already apparent.

Safety is improving as well. Despite our high operating tempo, 1984 was the safest year in naval aviation history. The number of mishaps in 1984 was 21 percent lower than in 1983. Fatalities resulting from aircraft mishaps were 23 percent lower in 1984 than in 1983. The cost of aircraft mishaps in 1984 was 39 percent below the 1983 level. We saved 21 lives, 19 aircraft, and over two hundred million dollars.

Finally, retention rates, a key indicator of our overall readiness because of our reliance on the skills of a professional career force: as you know, those rates had been rising dramatically in recent years. We have begun to see a downward trend in all three categories of reenlistments, and the loss of trained pilots may be starting to accelerate. This reversal is due to a number of factors, one of which is the high operating pace we're asking of our crews and their families.

With your support, the Navy has reversed declining readiness and sustainability trends in just three short years. Ours is a Navy with improving weapons inventories, with more spare parts, and with more experienced, better trained crews. We must continue those improving trends; we must take immediate and positive actions to return the retention trends back to that pattern of rising readiness.

CONCLUSION

To summarize, the evolving global commitments of U.S. naval forces reflect evolving American interests, alliance commitments, and the need for active deterrence around the globe. The operating pace required of the Navy to meet these commitments has never been higher in peacetime than it is now. The burden of that operating tempo is a heavy one; the benefits we provide to the nation are considerable.

My purpose has been to outline the background of our naval commitments: how they are derived in the major regions around the world where we operate, and the general kinds of influence we exercise through them. I am now ready to discuss these considerations with you. Thank you.

Senator COHEN. Thank you Admiral Lyons.

Are we making a lump-sum payment to our pilots in order to keep them now?

Admiral LYONS. I think that has been one of the proposals, and I would support it. We have to be able to compete, and I believe that this is one of the positive factors that would help us compete better. I think a lump-sum payment of $36,000 versus training that man's replacement at a cost approaching $1 million is pretty cost effective.

Senator COHEN. You just touched upon the effect of deployments on personnel. You make a comparison between those men serving who are in foreign home ports versus domestic home ports. Have you found a correlation?

Admiral LYONS. We have found there is a correlation—as you know, Mr. Chairman the planning factor we use for keeping a ship deployed is a ratio of 1 in 3. In the case of those ships we have home ported overseas, such as the *Midway* and several of our other ships in the Western Pacific, we get a tremendous payoff in terms of equipment usage and, most probably, in terms of stress on our crews.

I can provide figures for the record, but it is my perception that our retention rate on those ships is very high. I will get for the record the difference between the crews on those ships compared with those that we are rotating on a continuous basis from CONUS.

[The information follows:]

Enlisted Retention Stats WESTPAC Homeported Ships Vs Like Hull Avg (ALNAV)

The following illustrates First Quarter fiscal year 1985 enlisted retention statistics for Western Pacific overseas homeported ships as compared to similar ships that deploy from Continental United States Homeports.

ENLISTED RETENTION FOR WESTERN PACIFIC OVERSEAS HOMEPORTED SHIPS VS LIKE HULL AVG ALNAV

FY-85 OCT - DEC

HOMEPORTED WESTPAC					LIKE HULL AVG. ALNAV				
SHIP		1st	2nd	3rd+	SHIP		1st	2nd	3rd+
CV-41 MIDWAY (JAPAN)	NET	70.7	80.0	100.0	ALL CV	NET	41.0	49.0	90.0
	GROSS	64.4	75.0	77.8		GROSS	33.0	41.0	69.0
AS-19 PROTEUS (GUAM)	NET	87.0	87.5	100.0	ALL AS	NET	61.0	60.0	[illegible]
	GROSS	87.0	77.8	85.7		GROSS	46.0	50.0	72.0
AFS-4 WHITE PLAINS (JAPAN)	NET	66.7	50.0	100.0	ALL AFS	NET	44.0	54.0	87.0
	GROSS	66.7	50.0	100.0		GROSS	38.0	51.0	61.0
LCC-19 BLUE RIDGE (JAPAN)	NET	50.0	75.0	100.0	ALL LCC	NET	51.0	59.0	84.0
	GROSS	46.2	75.0	100.0		GROSS	45.0	58.0	81.0
LKA-116 ST. LOUIS (JAPAN)	NET	100.0	100.0	100.0	ALL LKA	NET	47.0	55.0	83.0
	GROSS	25.0	100.0	100.0		GROSS	32.0	46.0	70.0
CG-24 REEVES (JAPAN)	NET	100.0	33.3	100.0	ALL CG	NET	61.0	38.0	88.0
	GROSS	71.4	33.3	75.0		GROSS	55.0	36.0	71.0
CG-31 STERETT (SUBIC)	NET	58.3	50.0	100.0					
	GROSS	46.7	50.0	75.0					
DDG-9 TOWERS (JAPAN)	NET	50.0	100.0	100.0	ALL DDG	NET	50.0	51.0	87.0
	GROSS	50.0	100.0	100.0		GROSS	41.0	44.0	71.0
DDG-21 COCHRANE (JAPAN)	NET	80.0	80.0	100.0					
	GROSS	80.0	80.0	100.0					
FF-1052 KNOX (JAPAN)	NET	71.4	100.0	100.0	AKK-FF	NET	53.0	59.0	88.0
	GROSS	71.4	100.0	100.0		GROSS	44.0	47.0	69.0
FF-1067 HAMMOND (JAPAN)	NET	62.5	66.7	-					
	GROSS	55.6	66.7	-					
FF-1087 KIRK (JAPAN	NET	-	-	100.0					
	GROSS	-	-	66.7					

NET RETENTION = $\frac{\text{TOTAL REENLISTMENTS}}{\text{TOTAL ELIGIBLE}}$

NOTE: Columns marked 1st, 2nd, 3rd denote specific reenlistment term

OVERSEAS HOMEPORTING

Senator **Cohen**. Do you think we ought to expand the use of overseas home ports?

Admiral **Lyons**. Right now, we have 523 ships in the Navy and, as you know, we are moving to a 600-ship Navy. I think the balance that we have today is about right when you look at our worldwide commitments. We have looked carefully at which ships we need to have homeported overseas, and I think we are approaching the right balance between CONUS-homeported and overseas-homeported ships.

I don't want to preempt the CNO, but we have relooked at our global major ship deployments, carriers and battleships as a focal point, and we are moving in a direction that is going to give us greater flexibility than we have ever enjoyed.

The CNO is in the process of putting the finishing touches on this review of the overseas-homeporting issue, and I think in the not too distant future, we will be making an announcement of our findings. This will allow us to get at the heart of changing some of the deployment patterns that you alluded to earlier, Mr. Chairman, and we will be able to go into areas where we have not been able to go previously because of a very restricted force structure and requirements to meet other crisis situations.

BATTLESHIPS

Senator COHEN. Earlier this week Admiral Baggett testified that we are using battleships today to provide some relief from having to use carrier battle groups. Can you give me an example?

Admiral LYONS. One of the specific things we are looking at——

Senator COHEN. Give me an example of what has been done in the past year.

Admiral LYONS. We certainly have used the battleship down in the Caribbean and Central America region in lieu of a carrier deployment there. We formed a surface ship action group with the battleship as the centerpiece. But let me give you some other examples that we are looking at.

For example once we get to greater regional stability, let's say, in Southwest Asia, I would foresee—and we are looking at various options—where we would take a battleship surface action group and move it into the Indian Ocean in lieu of possibly a carrier. Of course, coupled with this option would be the movement in land-based tactical air, such as the U.S. Air Force, and if not the U.S. Air Force, then operating with the Marine tactical air. We are looking at combinations like that, and to me, depending on the threat of the existing situation, this is a very viable alternative.

Another example that we are looking at is when the USS *Midway* goes into its selected restricted availability [SRA] maintenance and repair period, perhaps in conjunction with the *Midway* Air Wing, we can use a battleship surface action group as the centerpiece in lieu of the *Midway* .

We are moving toward more flexibility and innovative employment of our resources as long as it is consistent with our national objectives for that particular region.

Senator COHEN. You mentioned New Zealand before. But aside from the New Zealand issue, what would be the impact upon our operations if Papandreo would have his wish and had American ships out of Greek ports? After you comment on Greece, I would like you to comment on Subic Bay.

Admiral LYONS. I think it would be a definite weakening of the southern flank of NATO. To me, it would be a free gift to the Soviets which would indicate a further weakening of the alliance. After all, in my view, it is the Sixth Fleet that binds the southern flank of NATO together. It is a very visible representative and possesses a very high war-fighting capability. Certainly, I do not see the loss of Greek ports to the 6th Fleet as being at all helpful to the alliance.

SUBIC BAY

With regard to Subic Bay, we have had a very dramatic change in the Southwest Pacific with the Soviet movement into Vietnam, specifically at Cam Ranh Bay, and it represents the largest Soviet deployment of forces outside the Soviet Union proper—other than those being used in the invasion of Afghanistan. Certainly, it is a very dramatic change in the strategic balance in that theater of operations. If we are to remain a Western Pacific power, I view the retention of our bases in the Philippines as essential.

Senator COHEN. Are there any options that you are aware of at Subic Bay?

Admiral LYONS. The options that would be readily available have considerable drawbacks and certainly we are going to lose a lot in readiness, in deterrence, and in our ability to respond to conflicts. We would be giving the Soviets a very clear advantage. They would be astride key sea lines of communication [SLOCs] coming through the Strait of Malacca which flow up to our allies in the Northwest Pacific, and also those key SLOCs used in coming back and forth to the continental United States. To me it would make a tremendous and dramatic change in the equation as it relates to the political pressure that could be brought to bear on Japan should we be forced to pull back from our position in the Philippines.

Senator COHEN. What sort of assistance are we getting from some of the smaller nations like Malaysia and Singapore?

Admiral LYONS. We conduct small scale operations with them, and it is a very positive relationship.

If I could go back to New Zealand for a moment, while New Zealand has a very small force—they have a squadron of destroyers, a number of A-4 aircraft, and five maritime patrol aircraft—the fact of the matter is our whole maritime strategy is a coalition strategy.

Factored into the strategy is not only combined efforts with our sister services, but our allies as well, and that is what maintains the strategic balance, the deterrence equation. When you ask what difference does a squadron of destroyers make? I have to answer that there is nobody else there to take its place, and that is the difference.

COOPERATION WITH CHINA

Senator COHEN. What sort of cooperation are we establishing with China? What are we doing there with respect to——

Admiral LYONS. I think the developing cooperation with China is a positive step and there have to be factors that work to both sides of that equation. At this time, we are looking at certain programs that might improve the PRC Navy's self-defense capabilities on their ships.

Senator COHEN. Are we putting any ships there this spring? Are we sending any ships over to China this spring?

Admiral LYONS. There is a possibility that this could happen this spring.

Senator COHEN. Could China be in a position within a relatively short period of time of helping to carry out some aspects of our own maritime strategy?

Admiral LYONS. There is a convergence of views. We have some common objectives. Certainly, China does sit next to a key sea line of communication, and it can be helpful in maintaining stability on the Korean peninsula. I think that these are all positive factors.

Senator COHEN. I have several more questions, but I will yield to my colleague, the ranking member on the subcommittee, Senator Exon.

Senator EXON. Mr. Chairman, thank you very much.

I apologize to you, Mr. Chairman, and to you, Admiral, for being late, I had other commitments that I just could not get out of, but I consider your testimony tremendously important.

OVERALL BALANCE OF FORCES

Admiral, there is a preoccupation, maybe not in the Navy, but in Congress, with exotic things like carriers, tactical aircraft, and all these types of things that we like to talk about and procure. I am sure, though, that one of your concerns is the overall balance of our forces around the world. I just want to tell you that I think the committee is very much interested in looking at those factors also.

I have been listening to the interesting questions of the chairman, and I share his concern in those areas.

How are things going, and feel free to comment, if you will, in the nonpopular part of the laborious task that you have in the projection of our naval forces around the world, on the oilers, the minesweepers, and all of those not so glamorous things that we don't hear a great deal about?

I am not going to get into the difficulties in New Zealand, I am sure the chairman has covered that, and I share his views. Let me ask you a little bit more about the Pacific. I am very much concerned with how you are going to project forces there over the long pull given the increasing threat.

SUBIC BAY

We are in open session so I understand that you might not want to comment on some of these things in detail, but I am asking now about the politics of the situation with regard to Subic Bay. There is some instability in that government now that has been generally friendly to the United States and, I believe, to our Armed Forces.

I have been somewhat concerned that some rhetorical statements have been made that may put us in an akward position. If there is a change of the government there, Communist takeover, and I am not sure that that necessarily would be the case, we certainly need to carry on as friendly relations as we can.

I think New Zealand was a big surprise to us. We didn't expect that. Have you detected the proper concern on our part for a backup position in case the Marcos government would not be in control in the Philippines, and in that scenario what backup positions are we taking with regard to getting along with some other government taking over there, as far as protecting particularly Subic Bay, and Clark Field from the standpoint of another one of the services?

Admiral LYONS. Well, Senator, I used to be a commander of a naval surface group in the Western Pacific, Commander of Task

Force 73, and my headquarters were in Subic Bay. I don't feel necessarily that the programs we are working with the incumbent government of the Philippines will not be continued. I think we are looking at that in a very positive way.

Really, this is a matter more properly addressed by the State Department than ourselves.

Senator **Exon**. I understand.

Admiral **Lyons**. In my personal view, I think we are approaching it in a very pragmatic and sensible way. Obviously, one administration is not going to last forever, and I don't think we expect it to. With the programs that we have in place, I do not see why we would not be able to continue to work with a successor government.

Senator **Exon**. You are generally satisfied with the fact, then, that we have some broad range support in the Philippines, even including some of the active opposition to the Marcos government today?

Admiral **Lyons**. Yes, sir, but to have that broad support continue and I know from the Defense Department and the State Department it is going to require the continued support of Congress, certainly to support the Foreign Military Sales [FMS] Program and the Economic Support Program.

It is a democratic society, and I have never met a Filipino who didn't like Americans. They are great friends of the Americans. They are good workers. Some of the finest work that we get done on our ships is done right there in the Subic Bay Shipyard. They are intelligent people. They are quick to learn. I think they have the wherewithal to build a very viable and sustaining economy. Granted, right now is not one of their high points, but that is no reason for us to turn our back in any such way, and I don't think we are.

I think what we need to do, and the programs that have been laid out are the proper ones, is when we have an ally who needs assistance, we need to be able to react a little more quickly than normal in processing that assistance. That, again, is far out of the Navy's bailiwick.

Senator **Cohen**. If you would yield for just a moment. I have met with at least one of the opposition leaders in the Philippines, and there is the notion somehow that these countries would like to maintain their neutrality. One of the planks of the opposition is to look forward to the day when the bases are no longer there.

I think everybody has to understand that neutrality means that you don't continue to get the preferential treatment they have been getting over the years. That means the Philippines, that means Greece, it means certainly New Zealand, and anyone else. To the extent that each country wants to exercise its sovereign right to follow its own domestic and foreign policies, they ought to be on notice that it doesn't mean that the United States continues doing business as usual; and that is something that has to be understood very clearly by any nation that we are doing business with now, including the Philippines.

Senator **Exon**. I think we are all talking the same language. I was in the Philippines for almost a year and a half. I didn't want to stay that long, Admiral, but I was there. Outside of Subic what other facilities do we have in the Philippines, I know that is the major one?

Admiral **Lyons**. I am not sure exactly, we have several outlying bases, but I will be glad to provide that for the record for you, if you would like.

[The information follows:]

Navy Facilities in the Philippines

The U.S. Navy has more than 50 commands based in the Philippines. The majority of these commands are located at the Subic Bay/Cubi Point naval complex near Olongapo, RP. Commands located outside of the Subic area are:

Naval Communications Station Philippines at San Miguel.
Naval Radio Transmitter Facility at Capas Tarloc.
Naval Link Station at Mount Santa Rita.
Poro Point Missile Range.
Tabones Naval Gunfire Support Range.
Bonanga Bay Mining Range.
Crow Valley Weapons Range (joint-use with U.S. Air Force).

Senator **Exon**. All right. Could I go on to something else.

HOSTILITIES IN CONVENTIONAL WARFARE

I expressed my concern about some of the less glamorous duties that you have to perform. Should we be involved in hostilities in the conventional warfare area, I am wondering if we aren't a little bit on the weak side now as far as minesweepers are concerned. I would like you to comment about that.

I am advised we basically have about 25 large minesweepers today, and most of those are manned by the Reserves Just a few years ago, in 1960, we had a whole lot of minesweepers around. We are talking about a 600-ship Navy, new worldwide commitments. I recognize that some of our allies have some minesweeping capabilities that would likely come into play, but if our key waters, some of our installations or some of our ports here at home would be mined in some fashion, I am wondering if we are adequately protected in this nondramatic field of minesweepers. How do you feel about that, Admiral?

Admiral **Lyons**. Of course, you are quite correct. Most of our minesweepers today are manned by the Reserves, and they do an excellent job.

As you know, in the Navy's shipbuilding program, we are increasing our number of minesweepers, which will give us a substantial force. Also today, not to be overlooked, we have our minesweeping helicopers, which performed so well in the Gulf of Suez last year when President Mubarak asked us to assist him in clearing the mines. The planting of those mines was an irrational act, one which I put under the category of state-sponsored acts of terrorism which today we face on almost a daily basis.

Senator **Cohen**. Are you referring to Libya, by implication?

Admiral **Lyons**. Certainly, Libya is one of the countries that supports state-sponsored acts of terrorism. In this case, we certainly believe that Libya was in the forefront of that minelaying operation. I wouldn't want to leave Iran out of the equation, considering all of the irrational acts that they have committed.

When you go back to several events in the late 1970's, our security policy for the Persian Gulf had as one of the pillars the Shah, and the forces he had under his command which lent stability to that area. That was a regional security asset not well understood by a number of people at that time, and when the Shah fell, it dramatically changed our security equation for that theater.

You will recall, in 1979 we had the Yemen crisis, and at that time we brought into the region a carrier battle group. When the Soviets invaded Afghanistan, which was another dramatic change to the strategic equation there, we brought in the second carrier battle group. We were coupled at that time with the Iranian hostage situation.

I think our carrier battle group today in the Indian Ocean is a stabilizing influence. It limits some of the erratic actions that the Iranians may take in that long and drawn out war that continues between Iran and Iraq. Just this morning another tanker was hit, but as of this point, we have had no U.S. flagship or U.S. naval ship hit, and I think that our presence—and that carrier battle group is one of the underpinnings—provides that security.

Senator EXON. I take it, then, that your answer to my question was that you are not overly concerned at the present time about minesweeping capability. As a military man, you would always like to have more, but with the new units——

SOVIET MINE INVENTORY

Admiral LYONS. What I was leading up to, certainly the Soviets have the largest inventory of mines in the world. However, we have a certain amount of capabilities and we are not just going to let some Soviet craft, be it a submarine or minelayer, come up to our coast and drop mines. You have to put the whole thing into perspective. We are going to have to have a contingency situation, and certainly our rules of engagement would permit us to take the action necessary to preclude that event from happening.

What you can't guard against necessarily, for it takes a very sophisticated intelligence network, are the irrational acts that we saw happen in the Gulf of Suez. It is a worldwide problem. Certainly a ship can come in, in the middle of the night, and roll off mines, we saw that happen.

What I am saying in effect is we have got to find a measure to bring state sponsored acts of terrorism under control. One of the key elements is a very sophisticated international intelligence network which would permit us to take the measures necessary to prevent these acts from coming to pass.

U.S. OFFENSIVE MINE-LAYING CAPABILITY

Senator EXON. How about our offensive minelaying capability? Are we getting along all right in that area? Are you satisfied with that?

Admiral LYONS. With the help of Congress, you have given us a balanced capability. As for inventories and some of the other areas, I think we will have to hold those for the closed session.

Senator EXON. Mr. Chairman, I will have some further questions for the record, but I have had my say, so I will turn it back to you.

Senator COHEN. Senator Glenn?

Senator GLENN. Thank you, Mr. Chairman.

I would like to follow up on that question about the mines, Admiral, because I was concerned about that, too. I was looking over your OPTEMPO chart, where we have huge commitments and we are providing steaming time, money, and all that sort of thing, but it is not a shooting war.

Admiral LYONS. Yes, sir.

AMMUNITION INVENTORY

Senator GLENN. When we look at our munition supplies—what would be out there being used as consumables when we are actually shooting at something, it is not a very reassuring picture; and that includes the mines, the torpedoes, quite a number of areas where I see us having a very thin red line of capability there, if you will.

The Captor in particular. You just made a statement in reply to Senator Exon that you are not too unhappy with that, but perhaps I misread your statement. Are there any other deepwater mines that we have in our inventory, or anybody else's, that are going to perform the deepwater functions?

There are no funds, as I understand, in the budget for Captor. Is that correct?

Admiral LYONS. I will provide you that answer for the record, Senator, if I may. Let me say this: Captor is a deepwater mine, and it is an effective mine. We have certain R&D programs where we are working on other mines, which I can provide you the information on, which will complement the Captor mine field as well.

Senator GLENN. Another area in munitions, Admiral, that I have been concerned about is torpedo strength. We spend billions procuring attack submarines. I know that the actual figures are classified so I won't go into them, but what we do have that is unclassified is the fact that if we went to war and fired one full load of torpedoes from every submarine that goes out, when they come back, we would have well under a full load to replace that which was just fired.

Admiral LYONS. I don't agree with that premise.

Senator GLENN. Those are the facts, Admiral, those are the numbers.

Admiral LYONS. I would like to take that question up when we go into closed session.

Senator GLENN. The MK-48 is what I am talking about. We can talk about that one when we go into closed session.

Admiral LYONS. Let me say this, we suffered years of neglect. Every readiness indicator that we have had in the last 4 years is on a positive slope. With the funds that were provided by Congress in 1981, the munitions are coming into the force today.

We have had an increase of over 50 percent in our ammunition inventory, particularly in the threat oriented ordnance, which is the ordnance that you are referring to. The funds that you provided in 1983, it takes 2 years to bring those munitions into the force, and they are arriving today.

You never have enough from a military standpoint, but we have made vast improvements in the last 4 years. When we go into closed session, I can cover some other areas for you.

Senator **Glenn**. All right fine.

Admiral McDonald yesterday, in testimony here, listed as one of his major concerns, the staff will correct me if I am wrong, that he was gravely concerned about his munitions availability. I was following up on some of his comments yesterday with regard to mines, torpedoes, and so on.

Admiral **Lyons**. You also had Admiral Crowe reporting as well. I think Admiral Crowe, in his testimony, gave a very balanced presentation in which he said that he saw his inventories increasing in these specific areas that you are referring to, and recognizes that we have to have a balance across the spectrum of warfare. That is what we are doing today with our service programs, that you here in Congress have supported.

I think we are improving our capabilities, Senator, year by year, and every one of those readiness indicators that you mention are on the positive slope. As a fleet commander, I used to look at my inventories 4 and 5 years ago, and I was concerned, very concerned. I said, what am I going to do if I get into a very high crisis situation. Just because you run out of a torpedo, that doesn't mean you can't kill a submarine, that is what American ingenuity is all about.

We have the finest ingenuity in our sailors and people today that I have ever seen in my 40 years of military service. There are different things that we can do, and we would do it, and we can institute it in a way that will permit us to continue meeting the objectives set by the national command authority.

While I mention our people, let me tell you they are the ones who put it all together. They are the ones who make it work. They are our national treasure. I am constantly amazed at the way they are able to adapt.

Senator **Glenn**. I don't quarrel with that at all, your remarks of the quality of our people and the fact that they are very adaptive, and so on. However, after an attack submarine fires its torpedoes, the morale of the crew isn't going to do much good on sinking anything.

Admiral **Lyons**. As you well know, Senator, when you get weapons limited, you are going to bring that submarine back and replenish it, and the same way in your battle group.

Senator **Glenn**. That is the point I was making, Admiral. We don't have enough to replenish after that first load has been fired.

Admiral **Lyons**. I don't agree with that statement. When we go into closed session, I am going to tell you how we are going to do it.

Senator **Glenn**. I know we have some alternative ways of getting at things, with aircraft and things like that that are figured in this overall equation. The point I was making is that we don't even have a full second load if we went out and fired all of our torpedoes on the attack subs. I think that we should have more. I would like more than two loads of torpedoes even though we have aircraft and some other ways of combating surface ships.

Thank you, Mr. Chairman.

Senator **Cohen**. Are there any more questions in the open session?

[No response.]

Senator COHEN. Senator Glenn, do you want to stay for our closed session?

Senator GLENN. I have to go to another hearing, and I hope to be back very shortly.

Senator COHEN. We may be out of here by that time.

Admiral LYONS. I will be glad to provide any answers.

Senator GLENN. Thank you, Admiral, I appreciate that.

Senator EXON. One last question in open session which I think you can briefly respond to.

BILLETING FACILITIES

Two or three years ago, you called it to our attention here, and we passed some emergency measures, for what we thought were improvements in the billeting facilities, recreation facilities, and so forth on Diego Garcia. Diego Garcia, obviously, has become much more important to us in the last 2 years.

Have those improvements been made, which the Navy asked for, and we supported to with funds, Admiral? Are things better from the standpoint of giving our people off-duty something to do on Diego Garcia, where I used to understand there was no place to go, even no ball fields for a while.

Admiral LYONS. Having made several trips to Diego Garcia, any funds that you provided, Senator, to upgrade the quality of life on Diego Garcia, were greatly welcomed. What I will do for you is provide for the record how the funds you provided in 1983 were translated into specific projects.

[The information follows:]

DIEGO GARCIA MILITARY CONSTRUCTION

The total fiscal year 1983 Facilities Expansion Program for Diego Garcia was $53.4M. $4.5M from this program was allocated to recreational facilities. The facilities constructed were five tennis courts, seven volleyball courts, two outdoor basketball courts, and a 15,500 square foot gym and handball court building. The outdoor playing courts are complete and in use, and the gym will be complete this June.

The total fiscal year 1984 Facilities Expansion Program was $31.8M. $6.5M of this program was used for a 280-man barracks which will be complete in January 1986. Additionally, $0.7M was used for a counseling center which will be complete in April.

Senator EXON. Have we made some significant improvement in the last 2 years in this area?

Admiral LYONS. It is my impression we have. When I was there in 1980 and 1981, it was really a barebones operation. A military construction program was instituted and was in progress. Where that stands today, I will be happy to get you an update.

Senator EXON. I assume that it is not upgraded to the point where you would volunteer for duty there, Admiral?

Admiral LYONS. It is a very key strategic place. I think I have outranked myself at this particular point in my career for permanent duty on Diego Garcia.

Senator EXON. My point is, we probably have some more to do, but we are making some progress. Is that a fair estimate?

Admiral LYONS. Yes.

Senator EXON. I have no further questions for the open session.

Senator **Cohen**. It is time to move into closed session and I would entertain such a motion.

Senator **Exon**. Mr. Chairman, I move the subcommittee go into executive session.

Senator **Cohen**. Without objection, it is so ordered. A short recess will be held while the room is cleared.

[Whereupon at 3:06 p.m., the subcommittee returned from recess and proceeded in executive session.]

EXECUTIVE SESSION

Senator **Cohen**. I find myself in the unusual position of having no questions, but I will ask you to comment on Senator Glenn's question concerning what options you have. You have a number of options that you might pursue?

Admiral **Lyons**. Just to make the statement that we are going to have submarines go out with loads, fire their weapons, come back and that is about it, that is a function of the crisis. It is a function of a number of factors. We have looked at how we can cut down production time should we have to shift to wartime mode. We believe that we can.

I have not specifically looked at the MK-48, but we have looked at some other weapon systems, and we think we can significantly reduce the production time to meet a demanding situation.

As to the other part I was referring to, when I took over the Second Fleet in 1981 and looked at the munitions situation, [deleted] in certain areas. What did that mean? Did that mean that if I was in a war with the Soviets, after I [deleted], that was the end of the ASW campaign? No, not at all; because we have little things called [deleted]. Let me tell you, [deleted] it gets your immediate attention.

There are different ways to employ those munitions. When you are not possibly sure of your contact, and you want to flush them, [deleted] which we have worked on to [deleted] and then you can use your torpedoes perhaps much more effectively and reduce your false target rate.

As you know, during the Falklands War, the UK fired on an awful lot of false targets, resulting in a lot of failures. They were surprised by their results and it appears it was a function of that environment down there.

The straight bean counting approach to the problem is not the full picture.

Senator **Cohen**. Staff reminds me that you might have something more to say about the Philippines in the closed session.

Admiral **Lyons**. I think in the Philippines, we have looked at the options and the fallback [deleted]. As one measure of readiness, depending on the support based for the Seventh Fleet, [deleted]. Then you have the Soviets sitting in Cam Ranh Bay, with a full bag of forces including attack submarines, strike bomber aircraft, air defense aircraft, and naval infantry personnel, threatening those very vital sea lines of communication.

NAVY'S REQUEST FOR 100 SSNS

Senator **Cohen**. Admiral McDonald said that he needs [deleted] submarines to carry out the maritime strategy in the Atlantic alone and, of course, he has a smaller ocean. Do you want to comment and relate this to the Navy's request for 100 SSNs?

Admiral **Lyons**. I don't know the basis for Admiral McDonald's statement, but I will hark back to our maritime strategy that it is a coalition strategy. We count on our allies to fill a number of submarine barriers and patrol stations in the NATO context.

I am not sure in what context Admiral McDonald made that statement, therefore it is a little hard for me to comment further on that issue.

Senator **Cohen**. Senator Exon?

Senator **Exon**. Admiral, I have several questions that I want to enter into the record for you to answer. I think that it would save everyone's time if you would do that.

Admiral **Lyons**. Yes, sir.

Senator **Exon**. If I could enter these questions, Mr. Chairman, for Admiral Lyons' prompt response.

PHILIPPINES

Do you care to go into the situation in the Philippines a little more in closed session that you might not have responded to. Let me ask you a specific question in closed session.

Let's assume the worst scenario that, for whatever reason, we would lose our base in Subic Bay. I am sure that we would all agree that it would be a terrific blow, but if we did lose it, what then, Admiral?

What would you do if I told you that you had to give us a plan of where we are going to have our major base if we lost Subic Bay?

Admiral **Lyons**. Just before you came in, we went around that question, but let me say this: To relocate those facilities we have there, and that is the full range, Cubi Point, the airfield, the POL storage facilities, our ammunition dump, all the other elements, the ship repair facility, [deleted].

I really don't want to give you a guess or estimate on the figures, but we have looked at several alternatives and none of them are any good.

Senator **Exon**. I am encouraged that we are looking at them.

NEW ZEALAND EPISODE

I suppose, to expand that question a bit, I don't know what is going on in the world today. We are supposed to have good arrangements with NATO, and we generally do in most areas. I am still shocked at the New Zealand episode, and we all are. Were you as shocked at what the conditions were, or didn't that surprise you totally?

Admiral **Lyons**. We knew what the Lange administration's platform was, but I think there was a certain amount of hope that balance would come into their equation, and they would see that in order to have a partnership, both partners have to play, both must share the responsibilities.

It is very distasteful to see them followthrough on such a very myopic view, with the attendant totally negative downstream effects of such a policy.

We were, and are still, hopeful that the policy will be changed, because it can only have a disastrous effect for the alliance, and the loser in the end as I see it, is going to be New Zealand. From our standpoint, obviously, the sea lines of communications in that area are going to be further threatened, but also, let's face it, the Soviets are making a determined effort and inroads in the Southeastern Pacific, and they are trying to capitalize on some of the elements that would lean toward the Lange view with regard to our naval port visits. Then, of course, the Soviets have some very attractive offers. Their inroads are through offering very attractive fishing enterprises with these small nations and islands in that particular region of the world. They have done it successfully throughout the rest of the world. Once having this entree, they capitalize through their state-sponsored merchant marine to undercut the other merchant marine freight rates to make further inroads. Pretty soon, through the economic web they are able to weave, they have captured the country.

It is one that we don't want to take lightly.

Senator EXON. Admiral, my concern is that the New Zealand proposition seems to me to be an outgrowth of the freeze movement in our country, and who can be against a freeze of nuclear weapons. I think that is very difficult. It seems to me that this is catching on, and to some degree I suspect that some of our feared difficulty in such places as Spain and Greece, where we are facing a similar threat—in fact, maybe a more immediate threat there than Subic Bay.

GREECE AND SPAIN

Do you agree that we are potentially in a no-win situation with Spain and Greece at the present time?

Admiral LYONS. Greece is, of course, a very difficult problem at the present time. Again, no administration lasts forever. Greece has had difficulties over the years. Right now, under the Papandreou administration, it is very difficult conducting day-to-day business.

Let me say that we have not had a ship visit request turned down over a nuclear issue in Greece, and we really have entree into Spain as well. From the Navy standpoint there has not been a problem with either one of those countries as has been the case with New Zealand.

Then, of course, in the Pacific today, as you have all heard Admiral Crowe testify, it is really one of our more stable regions on the globe today. Granted there is a certain amount of insurgency in the Philippines, and they do have to make some Herculean efforts to turn their economy around.

As I said in open session, we are taking a very pragmatic and correct approach with the Philippines to help them achieve some level of self-sufficiency, which I think we all believe they are very capable of achieving, and to promote democracy in that country.

DOWN PLAY OF CONVENTIONAL HARDWARE

Senator **Exon**. I just want to tell you of the concerns that some of us have with regard to down-playing of the conventional hardware, oilers, the miners, the minesweepers, and all those kinds of things.

I am not saying that the right thing is not being done in that area, it may well be, but I have a question about it, and I will be asking some questions from time to time on that. I just want you to know that there are some of us who are concerned to make sure that we are not overlooking some of those things, which I am sure you will agree are tremendously important, in our search for some of the more exotic and exciting things.

Admiral **Lyons**. You are quite correct. Mine warfare was a poor cousin for a number of years, and I think that Secretary Lehman recognized that as did Admiral Watkins, the Chief of Naval Operations. This is why you have a very determined and I think well-thought out SCN [shipbuilding] Program, to improve our mine warfare capability.

Do we have all the mines that we need today? [Deleted.] Do we have enough for our priority tests? [Deleted.]

We are also mindful of the fact of that tremendous mine inventory in the Soviet Union. [Deleted.]

Again, how do you stop a "Gat" type of operation, the Libyan ship which laid the mines in Suez? That is very difficult.

SOVIET MINE INVENTORY

Senator **Exon**. Is it true, Admiral, that the Soviets supposedly have an inventory of mines today of about [deleted] mines of World War II vintage, maybe [deleted].

Admiral **Lyons**. I am not sure of the exact number. I can tell you that they have the largest mine inventory of anybody in the world. The numbers, I will provide for you, for the record.

Senator **Exon**. And ours in comparison, would you do that?

Admiral **Lyons**. Yes, sir.

[The information follows:]

Soviet Mine Stockpiles

We estimate current Soviet mine stockpiles consist of about [deleted] mines, of which some [deleted] are pre-World War II vintage. Of the mines manufactured [deleted], approximately [deleted] percent are antisubmarine and [deleted] percent antiship in function.

Currently we have [deleted] mines and kits for turning bombs into mines in inventory. Totals increase to [deleted] over the next 10 years.

Senator **Exon**. Thank you very much, Admiral.

Thank you, Mr. Chairman.

Senator **Cohen**. Thank you very much, Senator.

Admiral, our appreciation for your coming today, and thank you for your testimony. We will have additional questions submitted for the record.

[Questions with answers supplied follow:]

Questions Submitted by Senator J. James Exon

TAO/AE/AOE

Senator Exon. Admiral Lyons, last year the Navy stated that they planned to buy three TAO oilers this year, yet you are requesting only 2. The Navy planned to buy one ammunition ship and one combat support ship and I see this year you have deferred purchase of those vessels. Are they not needed to meet the Navy's global maritime requirements? How long can we defer procurement of these vessels without impinging upon our capabilities to meet the Navy's global maritime requirements?

Admiral Lyons. A balanced growth in TAO, AE, and AOE programs is required to support Navy's growth in combatant forces. The deferral of the 3rd TAO in fiscal year 1986 was an affordability decision. Navy will attain the oiler force level required to support our carrier battle forces in fiscal year 1989 by further extension of existing ships and the addition of the first five TAO-187 class. The AE and AOE program are coupled. The capability requirements of the AE are dependent upon the ship characteristics and subsequent appropriation of the AOE-6. The fiscal year 1986 fiscal year DP was adjusted to provide an additional year to assure the AOE was the ship we needed. The AE was placed in the next budget year to provide an opportunity to adjust the AE program on the basis of the AOE-6 appropriation.

The fiscal year 1986 budget reflects an MLSF Program which balances force growth, operational risk, cost, and affordability.

CAPTOR

Senator Exon. I note that there are no funds in the budget for continued production of the Captor mine. Have we met our routine requirements for this mine system? Do we have any other deep-water mine in our inventories today? Do our allies have any mine systems comparable to Captor?

Admiral Lyons. [Deleted.] The only other moored mines in our inventory today are the MK 56 and MK 57 moored mines. Similar in performance except for delivery mode (MK 56—air delivery, MK 57—submarine delivery), these mines have a [deleted]. The in-service MK 56 and MK 57 mines represent 1950's technology. [Deleted.]

Senator Exon. If we terminate the Captor program short of inventory objectives, what options do we have for deep-water mining during the remainder of this decade? Will more of our ASW assets (patrol aircraft, submarines, etc.) be tied down on barrier missions because of the shortage of mines?

Admiral Lyons. [Deleted.]

GRENADA LESSONS LEARNED

Senator Exon. In the Navy's "lessons learned" study of the Navy's role in the Grenada operation in the fall of 1983, weaknesses were noted in joint force interoperability—specifically relating to command and control. The report is also critical of intelligence support in general and in supporting tactical commanders with timely and accurate intelligence. How are these shortcomings to be addressed Admiral?

Admiral Lyons. The shortcomings in Command and Control joint interopability noted during the October 1983 Grenada recue mission have been addressed and corrective action has been taken. Several programs are underway and funded. For example, [deleted.]

The Navy is continuously reviewing tactical communications and related cryptographic programs, aimed at insuring that we take a systematic approach to interservice interoperability.

In reference to intelligence support during the Grenada mission, the "lessons learned" is not "critical of intelligence in general" and in fact states that "...intelligence support was generally adequate...." The primary shortfalls addressed in the intelligence section [deleted] have been well recognized and were and are being worked aggressively.

MLSF

Senator Exon. Do we have sufficient underway replenishment ships in our current inventories today to support a deployed (on a wartime basis) 15 carrier battle group force? Are we building a sufficient number of these ships to support the naval fleet of the late 1980's and early 1990's?

Admiral LYONS. No, we do not; and, I am concerned as a warfighter that we must now build the additional MLSF ships to attend our carrier battle groups operating in support of the Maritime Strategy. Tactically, we must not be constrained by the lack of station ships, AOEs; for sustainability, we must have the TAOs and AEs to prevent logistic dependence on others from becoming a strategy stopper. With continued support of the TAO-187 class and Strategic Sealift programs we will meet the fuel need of the late 1980's and early 1990's. We will meet the ammunition (AE) requirement by 1993. The AOE-6 program though is critical to the delivery of those products. Having now validated the requirement for that ship we are confident that the fiscal year 1986 fiscal year DP provides the balance in capability we need.

SUSTAINABILITY

Senator EXON. In his testimony at the Navy Posture hearing earlier this month, Secretary Lehman stressed that the sustabinability picture for munitions, ordnance, and spares was getting significantly better. I would agree that things are getting better, given the very low state of readiness that the Navy started out from. What goals are specified for readiness and sustainability for the Navy in the defense guidance? Will we achieve these goals in this five-year plan? What real growth is required in Navy munitions, ordnance, and spare accounts to achieve these objectives?

Admiral LYONS. The Defense Guidance (DG) readiness objectives for Navy, as for all of the Services, are stated in terms of force readiness (manning, training, unit operations, etc.) and material readiness (weapon system availability, maintenance, modifications, spare parts, etc.). For spare parts, the objective is [deleted]. The DG sustainability objective for spare parts and level-of-effort munitions is [deleted]. For threat-oriented munitions the objective is [deleted].

In the aggregate, resources programmed for both munitions and spare parts in the fiscal year 1986 to 1990 Plan [deleted].

In fiscal year 1985 dollars the funding required to achieve these objectives through fiscal year 1990 funding delivery period [deleted]. These amounts are programmed over the 5-year plan.

MCM ASSETS

Senator EXON. On Tuesday of this week, Admiral Baggett noted that mine warfare is one of the Navy's primary missions. Is the current mine warfare program necessary to meet the Navy's global commitments? Do the Navy's global commitments require assets beyond those programmed in the current five-year defense program? For years the Navy deferred investment in mine warfare. This trend was reversed in the early 1980s with the start of the Avenger program. Is the current mine warfare program deferrable, as the Navy judged it was during the 1970s?

Admiral LYONS. [Deleted.]

MINE WARFARE

Senator EXON. I note that the Navy intends to lay most mines at the start of any future conflict with aircraft, such as the P-3s, A-6s, and so forth. These aircraft have other primary responsibilities which will be equally pressing at the outset of conflict. Who controls those assets during the transition to war? How will those aircraft be tasked to lay mines and who has the responsibility for determining that tasking? How many aircraft are dedicated to this task on our warplans today, presuming the conflict described in the Forward Maritime Strategy? How long are those aircraft dedicated to the task?

Admiral LYONS. You are correct Senator. [Deleted.]

ASW SURVEILLANCE

Senator EXON. Two TAGOS ships are now in operation, one in the Pacific and one in the Atlantic. Admiral Baggett indicated earlier this week that they were already proving valuable additions to our ASW surveillance capabilities. Last year we cut one of the three requested TAGOS ships. This year I note that the administration has deferred purchase of one of the three planned for fiscal year 1986 last year. Is the TAGOS program a deferrable priority? Can we afford, in a military sense, stretching out this program further?

Admiral LYONS. The TAGOS program is not a deferrable priority. Our original procurement profile was stretched out by the Congress, but the contract will still deliver three ships in fiscal year 1988 and three in fiscal year 1989 as originally proposed.

Senator **Cohen**. The subcommittee is adjourned.

[Whereupon, at 3:30 p.m., the subcommittee adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

TUESDAY, MARCH 5, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY SHIPBUILDING AND PROCUREMENT

The subcommittee met in open session, pursuant to notice, at 10 a.m., in room SR-232A, Russell Senate Office Building, Senator William S. Cohen (chairman) presiding.

Present: Senators Cohen, Wilson, Nunn, and Stennis.

Staff present: Gordon G. Riggle and Mark B. Robinson, professional staff members; Arnold L. Punaro, staff director for the minority; Russell C. Miller, research assistant; Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Mark J. Albrecht, assistant to Senator Wilson; Allan Cameron, assistant to Senator Denton; John Rasmussen, assistant to Senator Gramm; Francis J. Sullivan, assistant to Senator Stennis; William S. Lind, assistant to Senator Hart; and Jeffrey B. Subko, assistant to Senator Exon.

OPENING STATEMENT BY SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator **COHEN**. The subcommittee will come to order.

Good morning. Today the Sea Power and Force Projection Subcommittee is going to hear testimony on the Navy procurement programs under the jurisdiction of the subcommittee. On behalf of all the members who are present—Senator Stennis, I appreciate your being here this morning.

Senator **STENNIS**. Good morning.

Senator **COHEN**. On behalf of all the members, I would like to welcome our witnesses: The Honorable Ev Pyatt, Assistant Secretary of the Navy for Shipbuilding and Logistics; Vice Adm. Earl Fowler, Commander of the Naval Sea Systems Command; Vice Adm. Joseph Metcalf, Deputy Chief of Navy Operations for Surface Warfare; Vice Adm. Nils Thunman, Deputy Chief of Naval Operations for Submarine Warfare; Vice Adm. Edward Martin, Deputy Chief of Naval Operations for Air Warfare, and Mr. Roland Garant, the Director of the Investment and Development Division.

The Navy, under Secretary Lehman's leadership, has made admirable progress in reducing the cost of ships and supporting equipment, and your success in introducing competition and eliminating contractor claims should serve as a model for others.

These cost saving initiatives have contributed to a fiscal 1986 shipbuilding request that is almost 6 percent lower than last year's in real terms. While I recognize and applaud the Navy's past successes, I cannot help but be concerned about the affordability of your future shipbuilding plan.

Our Federal deficit is not a short-term problem, and to solve it is going to require that Congress take a longer view of Federal spending, including increased attention to the Defense Department's 5-year defense plan.

Evidently the Navy's 5-year shipbuilding plan assumes real growth of about 8-percent annually in the defense budget and moreover, the account, which total, $11.4 billion in fiscal 1986 would grow to over $17 billion by 1988. That is an unrealistic target in my judgment, and given the scope of our national deficit, Congress will not support that sort of growth. So, if we are going to achieve and maintain a 600-ship Navy, it is going to be done within realistic goals and at affordable costs.

I would like to come back to this issue of budget growth in the out-years during our question and answer period. Senator Exon I expect will be here later, but perhaps, Senator Stennis, do you have some remarks you would like to make?

Senator **Stennis**. Mr. Chairman, I am interested, of course, in this testimony. It is important. I had a promise out, though, before I knew about this hearing, to the Senate steering committee meeting that Robert Byrd called—so I want to express my interest here and my determination to get back to hear a major part of this testimony.

If you will excuse me now, I will go do that and then come back.

Senator **Cohen**. We will see if we cannot keep the hearing going to make sure you have a chance to pose questions.

Senator **Stennis**. Very fine. I do have a list of questions. Should I not get back, I would ask that they be inserted in the record.

Senator **Cohen**. Thank you very much.

Senator **Stennis**. Thank you very much, Mr. Chairman. I have had a chance to speak to these gentlemen with greetings of the day. I do want to express just one point for observation, and that is, it is a satisfaction to me and confidence that people have generally in the Navy and the Navy program and their way of doing things.

It is a pleasure for me to tell them that. I think that represents the general feeling. Thank you very much. I will get back as soon as I can.

Senator **Cohen**. Mr. Pyatt?

STATEMENT OF HON. EVERETT PYATT, ASSISTANT SECRETARY OF THE NAVY FOR SHIPBUILDING AND LOGISTICS

Mr. **Pyatt**. First, I would like to express our appreciation for the kind words that both Senators have mentioned about our programs. It is certainly our intent to carry on during the upcoming years in the same endeavor with fervor.

I would like to just briefly summarize again some of the experiences that we have had in our business activities. In 1980, 15 percent of the Navy's shipbuilding program was competed. Last year 85 percent was, Trident being the only exception. Our savings have aggregated $2.5 billion in 1983 through 1985 compared to the President's budget.

One of the reasons that this has been possible has been due to the initiatives that our shipbuilders have taken from Japanese shipbuilding technology translated to the American work force and to the American shipbuilding yards, and then converted from civilian ships to military ships.

I really think that in the aggregate our shipbuilding industry is clearly the most efficient in the free world, if not the most efficient in the world. I think too many times in looking at our shipbuilders we recall the hard times of the past when things just did not seem to work, and we seem to overlook now the things that they are doing extremely well. We hope that we have contributed to this progress with our business practice of insisting on 50-50 share lines.

They have a chance to make money. They also have a chance to lose money if they do not manage their endeavors. This, I believe, has resulted in a very good record in getting our ships on time and achieving the promises that we have made in our budget presentatons to the Congress.

One area of special interest to me has been the shift in Navy emphasis in the last 4 years to sealift. This is a result of the change in both the international merchant marine and the U.S. merchant marine.

One thing that has occurred is that many classes of ships that are useful in military operation, such as roll on-roll off and LASH types of ships, are no longer commercially viable. Commerce is being conducted on large container ships.

So we find ourselves in a transition period in the world market, and we find ourselves in a situation where ships are becoming no longer economically viable and will either be scrapped or, as we are proposing in one line in this budget, will be picked up on the competitive market for ships to provide Army lift.

We also have taken on some endeavors to make the commercial ships more useful militarily, building simple things such as sea sheds which allow container cells to be used to move unit equipment. All these things we have had to undertake because the merchant marine has changed, and I think I do not see any particular way that it is likely to reverse course in the future.

LHD MULTIYEAR ACQUISITION PROGRAM

One program I would like to call special attention to is the LHD multiyear acquisition program. It is in the budget. It is an unusual form of systems acquisition, of ship acquisition, and I would like to call your attention to it, because it is unusual.

The LHD is an amphibious assault ship which is a multipurpose platform with a capability to operate landing craft, air cushion vehicles as well as helicopters and V-STOL aircraft. We are absolutely firm in our plans to build these ships. We clearly need to provide replacement lift for the Marines to replace the LPH's.

Our LHD program calls for one multiyear contract in fiscal year 1986, for three ships with one ship fully funded in each of the fiscal years 1986, 1988, and 1989. In this manner, we will be able to save over $800 million compared to an annual appropriation with the conventional acquisition program. This is about a 20-percent saving.

These savings will be achieved through quantity buys of material and equipment, accelerated learning during construction, and through coordinated production, planning, and design. The three ships will deliver a total of 33 months earlier than if procured in a conventional manner.

The amphibious lift capability provided by these ships will be in the fleet and available for deterrence that much earler. This is a major innovation in applying multiyear concepts to ships, and I hope that we will be able to carry it through.

To another topic, during the last week we have had a problem with RIFs, potential cuts in work force in the Navy shipyards. Since this will undoubtedly come up a little later, I would like to say that our budget is put together based on a workload that will occupy 73,000 people in Navy shipyards.

That is approximately 5,000 less than now, so through some process we need to reduce the size of the work force in order to balance the work load in the budget.

I have other remarks in my prepared testimony that I would like to submit for the record, and at this time Admiral Metcalf can go through the specific ships being proposed and show pictures and discuss that.

Senator COHEN. Your complete statement will be included.

[The prepared statement of Mr. Pyatt follows:]

PREPARED STATEMENT OF EVERETT PYATT, ASSISTANT SECRETARY OF THE NAVY (SHIPBUILDING AND LOGISTICS)

Mr. Chairman and distinguished members of the committee. I am Everett Pyatt, Assistant Secretary of the Navy (Shipbuilding and Logistics).

It is my pleasure to appear before this committee to discuss the Navy Shipbuilding and Conversion Program, our accomplishments during the first four years of President Reagan's Naval Recovery Program, and the President's Budget Request for Fiscal Year 1986.

The 600-ship Navy, with the 15 carriers called for by the President's Maritime Strategy, will be in place by the end of this decade. The fleet has increased from 479 battle ships in 1979 to 545 by the end of this year. This level will be achieved with funds already appropriated. As of 1 February 1985, there were 103 naval ships under construction or conversion at 21 different U.S. shipyards.

At the same time we have increased the size of the Navy, we have reduced our acquisition costs. By improving our acquisition management, we have saved the taxpayers billions of dollars. The FY 1983 and 1984 shipbuilding programs have come in a total of $2.2 billion under the President's budget requests. To date in FY 1985, we saved about $250 million.

The elements of our acquisition strategy are design and cost stability, competition, and improvements in personnel and organization. I want to discuss in more detail three of these elements—design and cost stability, competition, and people.

DESIGN AND COST STABILITY

We are stressing design stability and specification control enforced through strict attention to unit cost thresholds. By defining our requirements at the outset of our program, we have been able to control changes during production that, in the past, led to high cost growth. We have also allowed more contractor participation in design so that designs represent cost-saving manufacturing techniques, and to identify, at the onset, the risks for all parties to the contract.

The highest cost-risk period in a program is the transition from development to production. This is when design faults show up along with production issues which may not have been adequately addressed during development. We are actively engaged in efforts to better manage this critical transition.

By specifying what we need and resisting the temptation to seek incorporation of the latest improvements during construction, we have been able to move away from cost reimbursement contracts to firm fixed-price and fixed-price incentive contracts. Moving to fixed-price helps control design changes and requires the contractor to know the risks of the project under procurement.

We recognize that some changes must occur, particularly in systems that are several years in production. We must incorporate the latest and most effective personnel protection and safety systems. Chemical warfare protection, for example, is a high priority program. These necessary changes are addressed quickly and fairly through equitable contract clauses and procedures.

We are continuing to strengthen our discipline on design and cost stability. It has worked on conventional shipbuilding programs and will also be effective in helping us execute multiship and multiyear programs such as the FY 1983 aircraft carrier program and the LHD program that we are presenting in the FY 1986 budget request.

COMPETITION

Competition has become the cornerstone of our acquisition strategy. It has reduced our acquisition costs and it will continue to reduce costs. We are seeking true competition, not merely its appearance. Navy policy is to establish and sustain second sources in every appropriate program.

In FY 1980, about 15 percent of Navy ship construction and conversion dollars were competitively awarded. In FY 1985, that percentage will increase to almost 85 percent. In FY 1985 and beyond, we intend to compete all of our ship construction and conversion, except the Trident submarine. I previously noted that we had saved some $2.2 billion in the FY 1983 and 1984 programs and have already saved $250 million in the FY 1985 program. Most of those savings can be attributed to competition.

Competition for nuclear attack submarine construction contracts has led to revolutionary breakthroughs in production technology and efficiencies. These improvements are expected to significantly reduce construction times, from 62 months to about 50 months.

You have heard us stress competition before—you will continue to hear us talk about competition. It works. It works to save the taxpayers money. It works to strengthen this nation's shipbuilding industry by providing the shipyards the incentive to improve production facilities and techniques and to incorporate cost-saving technology and methods. It works to provide the Navy with better ships at lower cost.

PEOPLE

The people who manage our acquisition programs are critical to improving the way we do business. We must have experienced and highly skilled people performing program management and contracting functions. Without competent management, our acquisition strategy and cost-reduction initiatives cannot be implemented to their full potential.

All studies of acquisition management, including a current GAO review of major weapon system acquisition management, agree that proper education, systems acquisition experience, and career incentives are essential to bring high quality people into the acquisition business and keep them there.

This has been a difficult problem. We need our best people in the warfare specialties so that we can maintain the Navy as an effective fighting force. We also need our best people managing the Navy's resources, to ensure that those resources are spent in the most efficient manner and that our weapon systems are of the highest possible quality. This conflict—the competition for the best people—is longstanding.

Last December the Secretary of the Navy and the Chief of Naval Operations approved a new program which establishes a Navy Material Professional. The Material Professional will be prepared to manage the acquisition, maintenance, and readiness functions. The career path of the Material Professional will integrate sea tours with acquisition tours for the entire path. The individual will be selected to be a

Material Professional at some point (probably after a command) and the warfare specialty will be relegated to a secondary role. A set of flag officer billets that can only be filled by Material Professionals is being defined.

Establishment of the Material Professional career path will provide the education, experience, and most importantly, the career incentives required to make our acquisition mangers capable, skilled business professionals with the warfare background necessary to properly manage weapon systems acquisition.

Establishment of this new career path should not be construed as evidence that our current acquisition managers are not competent. We have had occasion to change program managers for reasons of inadequacy, but our program managers are, for the most part, exceptionally fine managers. Our acquisition successes of the last four years demonstrate that fact. The long-term key is career incentive—there must be opportunities for these deserving individuals to rise to the top.

OTHER ACQUISITION IMPROVEMENT

An area where we are taking new initiatives is that of system specifications. This is a part of our attack on "gold plating." The Secretary of the Navy has appointed a senior civilian to focus his attention on specifications. This individual will oversee our initiative to reduce or cancel specifications for systems that have been overspecified. We will end the practice of designing equipment to meet standards in excess of those of the platform in which it is installed.

Our drive to improve acquisition management has achieved great success. But we will not slow down. We know that our success in achieving a combat-ready 600-ship Navy rests largely on our ability to wisely manage the resources provided us for that purpose. Navy acquisition management will continue to get better.

SHIPYARD IMPROVEMENTS

I would like to make special note of the steps taken by the private shipyards of the United States to improve their capabilities to respond to the Navy's needs. Without the cooperation and assistance of the private shipyards, we could not have achieved the acquisition improvements I have discussed. In addition, the private yards have taken steps of their own, including capital investment, to improve productivity and reduce costs.

Ships are now constructed of larger, more fully completed modules, resulting in earlier, higher percentage completions. New and improved facilities such as the Todd Pacific Synchrolift dock, the Newport News North Yard and submarine facilities upgrade, Bath Iron Works' improved module capability, and the improved submarine facilities at General Dynamics/Electric Boat, have improved yard efficiency and productivity and have reduced construction times. The private yards have learned from their strongest competitors, the Japanese yards, new and better production and production planning techniques.

All these efforts by the private yards are evidence that the U.S. shipbuilding industry wants to improve its product and reduce the costs. We are most pleased by these developments and look forward to continuing a working relationship that is beneficial to both Navy and the industry.

FISCAL YEAR 1986 SCN PROGRAM

Now I would like to discuss some highlights of the FY 1986 Shipbuilding and Conversion Program. The FY 1986 Navy Budget includes funding for acquisition of 23 new ships and the conversion of five. The majority of this construction and conversion is for replacement and modernization rather than force expansion. As I noted previously, the 600-ship Navy is on course and on schedule. Our programs for the second term of President Reagan's Administration are designed to consolidate the gains of the past four years and to assure that the 600-ship Navy of the 1990s will contain the most capable and modern ships.

The FY 1986 program includes funds for the thirteenth Trident submarine, four *Los Angeles* (SSN-688) class nuclear attack submarines, three *Ticonderoga* (CG-47) class cruisers, two *Whidbey Island* (LSD-41) class landing ship docks, four mine countermeasures ships, four coastal minehunters, two fleet oilers and two TAGOS support ships and for the first of a 3-ship multiyear procurement of *Wasp* (LHD-1) class amphibious assault ships. Funds are also included for conversion of three TACS auxiliary crane ships, one acoustic research vessel and one T-AVB aviation support ship. Advance funding is requested for the FY 1987 reactivation of the fourth and last battleship, USS *Wisconsin*.

LHD MULTISHIP/MULTIYEAR PROGRAM

The funding for the amphibious assault ship begins a multiyear program to procure three of the ships over the FY 1986-1989 period. The lead ship of the class, LHD-1, was authorized in FY 1984.

LHD-1 class ships will eventually replace the old LPH helicopter assault ships with multipurpose platforms of significantly greater capability. The LHD uses much of the same technology as the LHA-1 class, and will offer a well-deck for operation of the Landing Craft Air Cushion (LCAC) vessels as well as a flight deck for helicopters and V/STOL aircraft.

The multiyear acquisition program for the three LHD-1 class ships would utilize one multiyear contract in FY 1986 with Termination Liability funding and full funding for one LHD in each of Fiscal Years 1986, 1988, and 1989. The FY 1986 funding for the multiyear program covers production planning, detail design, advance material procurement, engineering support, and a contingency amount in case of cancellation.

We believe that the multiyear LHD program which we are presenting in the FY 1986 budget is a revolution in ship acquisition strategy. The program will allow us to save $820 million, twenty percent of a conventional annual procurement program spread over the same time period. The ships will deliver a total of 33 months earlier than if procured in the conventional manner, and our amphibious lift requirement will be meet earlier. Both Secretary Weinberger and Secretary Lehman are extremely enthusiastic about the program; it is a significant example of how we can do our business better and get the most military capability for the tax dollar. I urge you to look closely at this program; I know you will agree.

Together, the Congress and the Navy have taken significant steps to rebuild the nation's maritime power and ensure that the Navy will be able to meet the challenges of the 1990's and the next century. Private industry has responded in a most positive way to our rebuilding program and to our improvements in acquisition strategy. We need to continue our constructive relationships so that we may continue to design and execute innovative shipbuilding programs that reduce cost and delivery time.

The future of the Navy and the U.S. shipbuilding industry is in our hands. We have achieved a renaissance in naval shipbuilding that has strengthened both. We have more to do—I am confident that, together, we will continue to do it well.

STATEMENT OF VICE ADM. JOSEPH METCALF III, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

Admiral **METCALF**. Mr. Chairman, I am Vice Admiral Metcalf, Deputy Chief of Naval Operations for Surface Warfare, and I am the sponsor of the Shipbuilding and Conversion, Navy program and appropriation.

It is an honor to be here today. It is my first time before this subcommittee.

Senator **COHEN**. Your presence nearly generated a lot of television coverage. I do not see the cameras here this morning, but the reporters did make inquiries. Welcome.

Admiral **METCALF**. Well, let us put it this way. I am not unfamiliar with the problem.

At this time, I would like to request that my prepared statement be entered in the record as well as my OPN and WPN statements.

Senator **COHEN**. It will be included in full.

600-SHIP NAVY

Admiral **METCALF**. The Navy, of course, has gone from 479 ships to 523 over the past 4 fiscal years, and in my judgment we are on the way toward producing a balanced 600-ship force. The 5-year program that we are presenting to you today within the severe constraints which are are dealing with, will move us toward a balanced 600-ship Navy and permit us to do the job which we have to do in carrying out the tenets and the basic ideas of the maritime strategy.

So, what I would like to do is go through quickly, the 5-year plan and the individual areas which we are dealing with today.

SHIPBUILDING AND CONVERSION, NAVY
FY 1986 BUDGET REQUEST
($ IN MILLIONS)

PROGRAM	NUMBER	TOA REQUESTED
TRIDENT SUBMARINE	1	1,286.6
TRIDENT A.P.	-	245.2
ATTACK SUBMARINE (SSN-688 CLASS)	4	2,123.2
ATTACK SUBMARINE A.P.	-	585.2
BATTLESHIP REACTIVATION A.P.	-	53.5
CARRIER SLEP A.P.	-	133.4
GUIDED MISSILE CRUISER (CG-47 CLASS)	3	2,751.6
GUIDED MISSILE CRUISER A.P.	-	14.6
GUIDED MISSILE DESTROYER A.P. (DDG-51 CLASS)	-	164.3
LANDING SHIP DOCK (LSD-41 CLASS)	2	414.4
AMPHIBIOUS ASSAULT SHIP (LHD-1 CLASS)	1	1,177.9
AMPHIBIOUS ASSAULT SHIP A.P.	-	329.3
MINE COUNTERMEASURES SHIP (MCM-1 CLASS)	4	334.1
MINESWEEPER HUNTER (MSH-1 CLASS)	4	184.5
FLEET OILER (TAO-187 CLASS)	2	328.5
OCEAN SURVEILLANCE SHIP (TAGOS-1 CLASS)	2	113.9
OCEAN SURVEILLANCE SHIP A.P.	-	1.2
ACOUSTIC RESEARCH SHIP (AG)	1*	68.9
AUXILIARY CRANE SHIP (TACS)	3*	82.5
AVIATION LOGISTICS SUPPORT SHIP (TAVB)	1*	26.9
MOORED TRAINING SHIP DEMONSTRATION (MTSD)	-	26.5
SERVICE CRAFT	-	79.5
LANDING CRAFT	-	34.4
STRATEGIC SEALIFT	-	203.4
LANDING CRAFT AIR CUSHION (LCAC)	12	276.2
LANDING CRAFT AIR CUSHION A.P.	-	30.8
OUTFITTING	-	228.5
POST DELIVERY	-	112.6
TOTAL 23 NEW CONSTRUCTION 5* CONVERSIONS	28	$11,411.6M

What you have here, of course, will be in the record, and it is the 5-year shipbuilding plan. Again, I believe it is a balanced plan between combat forces and support forces to provide the means of carrying out the maritime strategy.

NAVY FIVE YEAR SCN PLAN
FISCAL YEAR 1986-1990
CONGRESSIONAL SUBMISSION

	FY-86	FY-87	FY-88	FY-89	FY-90
TRIDENT	1/1531.8	1/1673.6	1/1751.8	1/1835.8	1/1923.0
SSN-688	4/2708.4	4/2543.5	4/2872.9	2/1677.0	4/2812.3
NEW SSN	-	456.1	132.5	1/1693.3	538.1
BB(R)	53.5	1/422.4	-	-	-
CV SLEP	133.4	1/491.8	111.2	115.8	1/651.6
CG-47	3/2766.2	3/2885.2	3/3139.0	2/2229.1	-
DDG-51	164.3	2/2239.5	5/4523.4	5/4512.3	5/4690.0
LSD-41	2/414.4	-	-	-	-
LHD-1	1/1507.2	379.2	1/915.5	1/701.4	1/1505.5
LPD-4 SLEP	-	80.5	1/279.3	3/457.3	3/360.8
LSD-41 (VAR)	-	23.6	2/512.5	2/544.4	2/536.5
MCM	4/334.1	1/102.2	-	-	-
MSH	4/184.5	4/195.7	4/219.0	4/212.1	-
PCM	-	-	-	(6)95.1	(6)95.1
TAO	2/328.5	2/356.4	2/385.8	2/391.7	2/403.7
AO(JUMBO)	-	-	1/70.3	2/145.6	2/135.6
TAGOS	2/115.1	2/117.3	-	-	-
AE	-	-	1/485.1	1/373.6	1/380.0
AFDM	-	-	1/126.2	-	1/103.0
AOE-6	-	1/756.6	1/572.5	1/593.7	1/608.3
AG(C)	1/68.9	-	-	-	-
AR	-	-	-	-	1/524.7
TACS(C)	3/82.5	2/66.6	2/70.2	-	-
TAVB(C)	1/26.9	-	-	-	-
MTS(C)	26.5	-	-	-	-
SERVICE CRAFT	79.5	84.0	87.3	89.5	140.3
LANDING CRAFT	34.4	62.4	64.5	33.6	47.2
STRAT SEALIFT	203.4	29.1	70.2	27.8	74.0
LCAC	(12)/307.0	(12)/310.3	(12)/315.4	(12)/327.6	(12)/340.8
OUTFITTING	228.5	254.1	250.9	260.3	303.2
POST DELIVERY	112.6	204.3	146.7	209.8	150.1
TOTAL	11,411.6	13,734.4	17,102.2	16,526.8	16,323.8
SHIP COUNT	23/5	20/4	25/4	22/5	19/6

I would like to show fiscal year 1986. Here it is, broken down by ships again. This, of course, perhaps is difficult from your position. However, I think that you made the point that it is a reduction. It is a 6-percent reduction.

It is a growth in the 1985 appropriation from 1 year to the next, as you mentioned in your remarks, and I think it represents 10.9 percent of the Navy's TOA, which is down from 13 to 14 percent, which we have experienced in the past years.

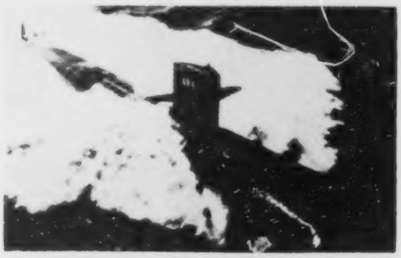
There are a number of reasons for that, not the least of which has been the success of competitive procurement, and very tight control, not only on procurement kinds of things, but also on configuration control and that sort of thing.

So, what we are really doing is, we are presenting 23 new construction ships and 5 conversions which we believe represents a fully supportive program toward the 600-ship Navy.

NUCLEAR ATTACK SUBMARINE - SSN 688

Mission:

To destroy enemy ships, primarily submarines, in order to prohibit the employment of such forces in attack and destruction of U.S. and Allied targets.



CHARACTERISTICS

			OFFICER	ENLISTED
LENGTH:	360 FT	CREW:	12	90
NAV DRAFT:	32 FT	BEAM:	33 FT	
PROPULSION:	Nuclear	DISPLACEMENT:	6,900 Tons	
WEAPONS:	Torpedoes, HARPOON, TOMAHAWK	SPEED:	20 + KTS	

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDERS
FY 1986 PROGRAM	4 SHIPS	$2708.4 MILLION *INCLUDES ADVANCE PROCUREMENT	NEWPORT NEWS ELECTRIC BOAT

Now I would like to run through those elements which are of interest to this particular subcommittee, and of course we can resume the discussion of amphibious ships and strategic sealift, which I believe is in the hearing on Thursday, so I will not go through those at this time.

The first, of course, is the Trident submarine—I am sorry, the 688, and Admiral Thunman is here if we have any specific questions on that very, very capable ship. There are four ships in the program.

BATTLESHIP REACTIVATION - BB(R)

Mission:

To conduct prompt and sustained combat operations at sea, worldwide, in support of national interests.

CHARACTERISTICS

	OFFICER	ENLISTED
CREW:	66	1471

LENGTH: 887 FT
NAV DRAFT: 38 FT
PROPULSION: STEAM
BEAM: 108 FT
DISPLACEMENT: 58,000 TONS
SPEED: 30 + KTS
WEAPONS: 9 16 Inch guns, 12 5 inch guns, 32 TOMAHAWK, 16 HARPOON, 4 Close in Weapons Systems (CIWS)

FUNDING REQUEST	NUMBER	TOA * REQUESTED	INDUSTRIAL SITE
FY 1986 PROGRAM:	–	$53.5 MILLION ADVANCE PROCUREMENT*	GULF/EAST COAST PRIVATE SECTOR

Next is the battleship reactivation. The funding this year is advanced procurement for the *Wisconsin.* Full funding is in fiscal year 1987. I think that the performance of the *New Jersey* in the IO [Indian Ocean] off Beirut and Central America, and other places has demonstrated the capabilities of these ships to take an active role and take the pressure off of our carriers and other ships.

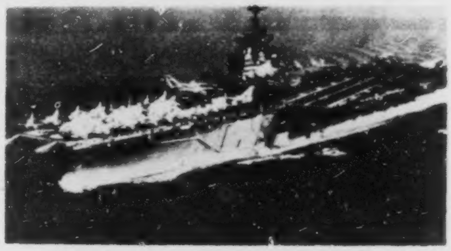
With the Tomahawk and Harpoon, the 16-inch guns, and, of course, their absolutely superb survivability, they represent a formidable addition to our war fighting capability for about the price of an FFG.

So, these ships have demonstrated in the limited time they have been with the force that they really are a force multiplier.

CARRIER SERVICE LIFE EXTENSION PROGRAM-CV SLEP

Mission:

To operate aircraft and engage in attacks on targets afloat and ashore.



CHARACTERISTICS (USS INDEPENDENCE)

			OFFICER	ENLISTED
		CREW	143	2690
LENGTH:	1,070 FT	BEAM:	129.5 FT	
NAV DRAFT:	37 FT	DISPLACEMENT:	79,300 Tons	
CATAPULTS:	4	SPEED:	30 + KTS	
AIRCRAFT:	1 Carrier Air Wing. 86 POST SLEP			

FUNDING REQUEST	NUMBER	TOA * REQUESTED	INDUSTRIAL SITE
FY 1986 PROGRAM:	—	$133.4 MILLION * ADVANCE PROCUREMENT	PHILADELPHIA NAVAL SHIPYARD

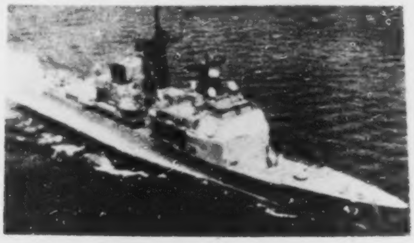
The CV SLEP. This, of course, is a picture of the *Independence* class, and what we are doing here is the advanced procurement for the SLEP. The *Forrestal* completes her SLEP in May of 1985. The *Saratoga,* of course, has not only completed her SLEP but is out and doing a very, very superb job in her deployments and in her operations.

It is a very fine operating ship, demonstrating that SLEP has really been worthwhile in bringing these ships along and extending their lifetime to between 45 and 50 years.

GUIDED MISSILE CRUISER - CG-47

Mission:

To destroy enemy aircraft, missiles, submarines and surface ships in order to prohibit the employment of such forces against U.S. forces. CG-47 class ships will normally be assigned to carrier battle groups or surface action groups.



CHARACTERISTICS

	OFFICER	ENLISTED
CREW:	33	362

LENGTH: 563 FT
NAV DRAFT: 31 FT
PROPULSION: Gas Turbine

BEAM: 55 FT
DISPLACEMENT: 9,600 Tons
SPEED: 30+KTS

WEAPONS: AEGIS Combat System, Vertical Launch System SM-2 MR, 2 5"/54 Guns, TOMAHAWK, HARPOON, TORPEDOES, Close in Weapons System (CIWS), LAMPS MK III Helicopter, AN/SLQ32 (V3), SRBOC

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	3 SHIPS	$2766.2 MILLION * INCLUDES ADVANCE PROCUREMENT	INGALLS BATH IRON WORKS

The CG-47, this is the *Ticonderoga* class. The *Ticonderoga* really won her spurs off Beirut during the time when she was there, and she really created quite a stir within the combat circles, and we have got to start thinking how we are going to use these ships.

I like to say that this particular class of ship is going to cause a revolution in our capabilities of warfare at sea because with the Aegis system they are just very, very capable ships. We found out on the *Yorktown* that the kinds of things we have designed into these ships as a result of the Falklands experience and other things that the *Yorktown* had a very highly successful shock test, and so we are very pleased with the way the ship is going.

GUIDED MISSILE DESTROYER - DDG 51

Mission:

To destroy enemy aircraft, missiles, submarines and surface ships. The DDG 51 will be employed as a part of a Carrier Battle Group, Surface Action Group, Underway Replenishment Group or Amphibious Group.

CHARACTERISTICS

			OFFICER	ENLISTED
		MANNING:	23	280
LENGTH:	466 FT	BEAM:	59FT	
NAV DRAFT:	30 FT	DISPLACEMENT:	< 8300TONS	
PROPULSION:	LM 2500 Gas Turbine	SPEED:	30 KTS	

WEAPONS: AEGIS Weapon System, Vertical Launch System, TOMAHAWK, SM-2 MR, VLA, SEAFIRE/GUIDED PROJECTILE, HARPOON, Torpedoes, (1) 5"/54 gun, SQS/53C SONAR, AN/SQR 19 TACTAS, CIWS (2), SLQ 32 (V) 2/SUPER RBOC , LAMPS MKIII ELECTRONICS

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	—	$164.3 MILLION ADVANCE PROCUREMENT	TBD

The guided missile destroyer, the DDG-51; this is for advanced procurement for the ship. The lead ship was appropriated in 1985, and we anticipate contract award in mid-March, and it is going to be a highly competitive award.

MINE COUNTERMEASURES SHIP - MCM 1

Mission:

To hunt, neutralize and sweep mines in CONUS waters, choke points and overseas areas.

CHARACTERISTICS

			OFFICER	ENLISTED
		CREW:	5	67
LENGTH:	224 FT	BEAM:		39 FT
NAV DRAFT:	11.4 FT	SPEED:		13.5 KTS
PROPULSION:	DIESEL	HULL:		Wood/GRP

EQUIPMENT: Mine Hunting Sonar SQQ-30, Mine Neutralization System (MNS), Standard mechanical sweep gear, Precise integrated Navigation System (PINS AN/SSN-2)

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDERS
FY 1986 PROGRAM:	4 SHIPS	$334.1 MILLION	PETERSON MARINETTE MARINE

The mine countermeasure ship; 9 ships of a 14-ship class have already been funded. These ships are being built at the present time by Peterson and Marinette Marine. We are satisfied with the way they are progressing.

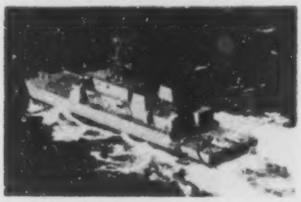
I think the Secretary of the Navy hit it on his testimony that we have had some problems with these, teething problems, I think he called it, and I think that is a good way to describe it.

My view of these ships is that they are going to be very, very successful ships for the mission, and we are very excited about them, and as the director of surface warfare, I am really excited that the reserves are going to be involved. We are giving them a first-rate ship with a first-rate mission.

MINESWEEPER HUNTER - MSH 1

Mission:

To hunt and neutralize all types of mines in CONUS coastal waters and the approaches to CONUS ports.



CHARACTERISTICS

LENGTH:	189 FT
NAV DRAFT:	13 FT 3 IN (OFF CUSHION) 8 FT 3 IN (ON CUSHION)
PROPULSION:	DIESEL

	OFFICER	ENLISTED
CREW:	5	43
BEAM:	39 FT	
HULL FORM:	SURFACE EFFECT ǀ SHIP	
SPEED	10 KTS	
HULL:	GRP	

EQUIPMENT: * Mine Hunting Sonar, SQQ-30 (Variant); Mine Neutralization System (Variant); RAYDIST (or equivalent)/SATNAV (GPS)/LORAN-C. *Equipment down sized for coastal mission.

FUNDING	NUMBER	TOA REQUESTED	BUILDER
FY 1986 PROGRAM:	4 SHIPS	$184.5 MILLION	BELL AEROSPACE

Again, the MSH-1, which is sort of a smaller cousin of the MCM, is intended for use in U.S. military and commercial ports. The lead ship again is in fiscal year 1984.

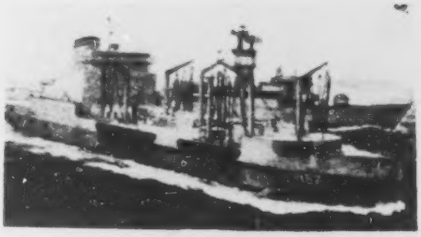
We are excited about the hull form we are going to use for this thing. It is going to be built of a glass reinforced plastic.

It is going to be a surface ship effect, and I think that we have got a very modern, imaginative class of ship that we are going to build here, and again, it will be operated by the Naval Reserve.

FLEET OILER TAO 187

Mission:

To provide rapid replenishment of petroleum products to operating forces at sea.



CHARACTERISTICS

LENGTH:	677.5 FT	CREW:	95 MSC/21 USN
NAV DRAFT:	35.0 FT	BEAM:	97.5 FT
SPEED:	20 KT Sustained	CAPACITY:	180,000 Barrels
PROPULSION:	Medium Speed Diesel		

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM	2 SHIPS	$328.5 MILLION	TBD

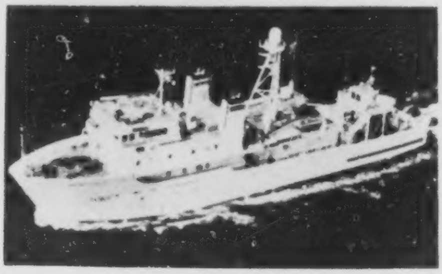
The fleet oiler, the TAO-187 class, we require, we estimate, between 20 and 22 of this class to support the 600-ship Navy, and to replace older, aging assets. This is a shuttle ship. It is not meant to actually arrive with a battle group.

What it does is, it goes between bases or oil depots to the battle groups where it transfers its cargo to AO's and the like. It has the capability of directly fueling battle group ships, but [illegible] it is a shuttle ship, as its primary mission.

OCEAN SURVEILLANCE SHIP : TAGOS

Mission:

As a unit of the Military Sealift Command, to collect, process, and transmit acoustic data.



CHARACTERISTICS:

	OFFICER	ENLISTED	TECHNICIANS
CREW:	8	11	7

LENGTH: 226 FT
NAV DRAFT: 15 FT
PROPULSION: DC ELECTRIC MOTOR DRIVE

BEAM: 43 FT
DISPLACEMENT: 1980 TONS
SPEED: 11 KTS

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	2 SHIPS	$115.1 MILLION * INCLUDES ADVANCE PROCUREMENT	TBD

The ocean surveillance ship, the TAGOS; we actually have four of them that have been delivered to date. The remainder of these ships are on schedule. The TAGOS-1 is now on station in the Atlantic, and the second is out in the Pacific.

We are experiencing some very dramatic results from this ship that in a classified session or briefings we can get to you what they are producing, but they really are doing what we expected them to do, and they are doing it very well. These ships are basically civilian manned.

ACOUSTIC RESEARCH SHIP: AG

MISSION:

To transport, deploy and retrieve acoustic arrays, conduct acoustic surveys in support of the Submarine Noise Reduction Program, and to perform acoustic testing.

CHARACTERISTICS

LENGTH:	246 FT	CREW:	65
DRAFT:	22 FT	BEAM:	90 FT
SPEED:	10 KTS	DISPLACEMENT:	3,860 TONS
HULL FORM:	CATAMARAN		

FUNDING REQUEST	NUMBER	TOA REQUESTED	CONVERSION YARD
FY 1986 PROGRAM	1	$68.9 MILLION	TBD

The acoustic research ship. This ship is designed, of course, to deploy acoustic arrays and conduct surveys in support of our submarine program, the noise reduction program. It replaces an old World War II craft.

This craft, besides its age, is too noisy, and it really cannot support the things which have to be done to take a look at our submarines and make sure they are quite enough and do those kinds of things. They are necessary to measure the sound quieting of modern submarines.

CRAFT

	PROGRAM	QUANTITY	FUNDING
SERVICE CRAFT	YC	2	$ .7M
	YD	2	$13.2M
	YFN	2	$ 1.4M
	YFRT	1	$41.8M
	YP	6	$22.4M
LANDING CRAFT	SWCM	3	$34.4M

The craft line. It includes a mix of service craft as well as the follow on production of a special warfare craft medium which is on the bottom line there. We have got three of them in this program, the SWCM, and this craft is a surface effect type ship being built in San Diego.

We also in this craft line have the lead ship for a highly capable class of torpedo testing craft. These ships are designed to fire, monitor, and recover all types of Navy torpedoes on instrumented ranges and in the open ocean.

OTHER SHIPBUILDING

	FY 1986
MOORED TRAINING SHIP	$ 26.5M
OUTFITTING	$228.5M
POST DELIVERY	$112.6M
STRATEGIC SEALIFT	$203.4M
NET FUNDING REQUIREMENT	$571.0M

And finally, other shipbuilding. The significant points here are the moored training ship. In fiscal year 1985, Congress appropriated $30 million in advanced procurement leading to the conversion of a retiring nuclear submarine to function as a platform for nuclear reactor training, and I would defer questions on that again to Admiral Thunman.

The outfitting and post delivery lines, pace for initial spares and post delivery, the outfitting pace for initial spares kits, and noninstalled equipments postdelivery funding is required for sea trial and delivery items which were not the responsibility of the shipbuilder.

And finally, a strategic lift program which Mr. Pyatt referred to.

That is a run-through of this, and I would like to pass on to Admiral Thunman.

[The prepared statement of Admiral Metcalf follows:]

Prepared Statement of Vice Adm. Joseph Metcalf III, U.S. Navy, Deputy Chief of Naval Operations for Surface Warfare, Fiscal Year 1986 Shipbuilding and Conversion Budget Request

Mr. Chairman and distinguished members of the Committee, I am Vice Admiral Joseph Metcalf III, USN, the Deputy Chief of Naval Operations for Surface Warfare and the Sponsor for the Shipbuilding and Conversion, Navy (SCN) Appropriation.

Today I am privileged to have the opportunity to present to you the Navy's SCN budget request for fiscal year 1986 and to discuss our requirements for this year as well as the remainder of the five year shipbuilding plan.

Today, as every day, the United States Navy is on duty around the globe representing our national interests in a multitude of roles. Wherever we are needed, the Navy possesses the balanced forces to provide the precise element of strength to permit the United States and its allies to enjoy free movement over the world's oceans and safe passage through its waterways during what the Chief of Naval Operations has described as "an era of violent peace." This is possible only because the Congress has, over the last four years, joined with the administration to ensure that our Navy has been provided with the ships, the airplanes and most importantly, with the men and women to crew them. This has permitted growth from a total of 479 ships at the end of fiscal year 1980 to 523 battle force ships at the end of FY 1984. We are on course to achieve our 600 ship goal in 1989 and to do so at a much lower cost than could have been predicted. The cost reductions which have been achieved are dramatic.

For example, just in the Trident, SSN-688 and CG-47 lines, our budget request for this year is $962.3 million less than we had projected in the FY 1986 column of last year's five year plan and is also $391.8 million below the amount appropriated last year for a similar ship buy.

Throughout this SCN budget request, cost estimates are lower. This results from increased competition within a shipbuilding industry plagued by lack of commercial work. It is a direct result of a large share of the new construction and conversion work being competed between two or more shipyards, expansion of competition into the area of government furnished equipment and the stable economic climate of the last four years which has been characterized by lower interest rates and the lowest inflation in years.

Overall, the SCN request for FY 1986 represents 10.9 percent of the Navy TOA. This represents a downward trend from previous years and reflects the fact that the vast majority of the 600 ship Navy is either afloat or under contract in builders' yards. We have now moved into a budget period which will maintain and more finely balance the 600 ship mix.

SHIP DELIVERIES

In calendar year 1984, the Navy took delivery of 25 new and converted ships. The new construction programs contributed two ballistic missile submarines, five nuclear attack submarines, one AEGIS cruiser, seven FFG-7 class frigates, three TAGOS-1 class ocean surveillance ships and one cable repair ship, the *Tarc.* From conversion yards came the first four TAKR fast logistic ships, an auxiliary crane ship and the second battleship conversion, USS *Iowa.* So far in calendar 1985 three ships have delivered; the lead LSD-41, a FFG-7 and a *Tagos.* During the remainder of this year 23 more ships are scheduled to deliver as follows: one SSBN, three SSN-688, two CG-47 class Aegis cruisers, five FFG-7 guided missile frigates, USS *Forrestal* (second CV SLEP to complete), the second LSD-41, three more Tagos, three ARS-50 class salvage ships, a TACS and three more TAKR conversions. The sustained introduction of these new and converted ships permits the Navy to expand to its 600 ship goal in a controlled and manageable fashion.

STRATEGIC SUBMARINE FORCES

As we begin Fiscal Year 1985, our SSBN forces is composed of 36 ships. 31 of these are ships of the *Lafayette, James Madison* and *Benjamin Franklin* classes. 12 of these ships have been converted to employ the Trident I (C-4) missile with the remaining 19 still carrying the Poseidon missile. In addition, five of the new Trident submarines have been delivered and four of these awesome ships are already conducting deterrent patrols.

The building rate of one Trident submarine per year will be maintained through the FYDP, although the industrial capacity exists to build three every two years without impacting on SSN production. We believe that the present building rate is adequate to meet our strategic needs. Based on the rate of one per year, the FY 1990 ship will be the seventeenth of the class, of which eight will be configured for the C-4 missile and nine for the larger and more capable D-5 missile. Eventually the eight C-4 ships will be backfitted to employ the D-5 Trident II missile during regularly scheduled overhauls beginning in the early 1990s.

The ultimate size of the Trident force is a complex amalgam which involves any future arms limitation agreements as well as procurement decisions of other elements of the nuclear triad. Although the final force size of the Trident submarines has not yet been determined, we have tentative plans for a force of about twenty Tridents and we are continuing to study the matter. Our SSBN force is by far the most secure leg of that triad and the growing number of Trident ships at sea on patrol increases our security as each ship begins its deterrent patrols.

ATTACK SUBMARINE FORCES

The force level goal for nuclear attack submarines remains at 100. Given the increasingly formidible Soviet threat, this level of 100 must be considered a fiscally constrained goal. In order to reach and sustain a level of 100 nuclear attack submarines, the President's budget requests 18 SSN-688 class over the five year period. In addition, the lead ship of a new class designated SSN-21 is included in the FY 1989 budget year with required advance procurement funding commencing in FY 1987. This is the first new class of attack submarine to be introduced into the budget since FY 1970 when the first SSN-688 was funded. During this period the Soviet Union has delivered nine new classes of nuclear attack submarine. The SSN-688 is still the finest submarine in the world, but we have upgraded its capabilities to the limits imposed by the 1960s technology which went into its design. The SSN-21 is required to meet the Soviet challenge of the 1990s. We still hold a qualitative edge but the Soviets are improving their product far more rapidly than we anticipated. Since we are numerically smaller, our technologicial advantage must be maintained.

SURFACE COMBATANT FORCES

Over a third of the 600 ship Navy will be comprised of surface combatant ships. This category includes frigates, destroyers, guided missile destroyers, guided missile cruisers and battleships. The missions assigned to these ships include the entire spectrum of war at sea but primarily entail Anti-Submarine Warfare, Anti-Air Warfare and Strike Warfare.

Our forces at sea are organized and assigned for a particular task and surface combatants are required in every type of mission. In Carrier Battle Groups, Amphibious Groups, Underway Replenishment Groups and in Convoy Escort these ships provide the principal defensive force. The striking power of the Tomahawk missile strengthens the offensive role of the surface combatant. This is particularly true of the Surface Action Groups centered on the battleships which are being utilized as a substitute for Carrier Battle Groups in appropriate ocean areas. The introduction of Tomahawk and the Harpoon anti-ship missile provides at sea commanders with alternative methods of attack giving them vastly increased flexibility.

Surface combatant force level goals derived in 1980 have remained extremely stable. Our minimum requirement is for four battleships, 33 guided missile cruisers, 67 guided missile destroyers, 37 destroyers and 101 frigates.

Within this minimum force mix our most severe shortfall lies in the guided missile destroyer area. The 29 *Arleigh Burke* DDG-51 class guided missile destroyers which we are projecting over the next seven yars are not force builders but rather one for one replacements for the DDG-2 and DDG-37 classes, which will begin to retire as early as 1989. We intend to retain the CG-16 and CG-26 class cruisers up to 35 years of service life and provide them with the New Threat Upgrade of AAW sensors and weapons, but this is only a stopgap measure. Long term resolution of this issue is intertwined with aircraft carrier construction in the 1990s, for if we maintain our deployable carrier force level at 15 through the first quarter of the 21st century, additional guided missile destroyers will be required.

AMPHIBIOUS WARFARE

After ten years through the 1970s when no amphibious ships were constructed, the present administration has committed to ensure that the superb warfighting capability of the U.S. Marine Corps is fully supported with the modern ships and assault craft required to take full advantage of this unique capability to project power ashore wherever our national interest dictate. In FY 1981 the first Landing Ship Dock LSD-41 class was appropriated and in FY 1984 the first LHD-1 was appropriated. This year the seventh and eighth LSD-41 are included in the President's budget and funding for a three ship multi year LHD-1 program is also initiated this year. This building program supports the Department of the Navy goal of sufficient ships by 1994 to conduct the simultaneous lift of the Assault Echeleons of a Marine Amphibious Force (MAF) and Marine Amphibious Brigade (MAB).

Both the LHD and LSD have been designed to enhance the operational capability of the Landing Craft Air Cushion (LCAC). The LSD-41 will carry four LCAC and the LHD will carry three.

Future amphibious assaults will be conducted capitalizing on the 20-knot speed of the amphibious task force, heavy lift/long range helicopters and the 40–50 knot speed of the LCAC.

LOGISTICS SUPPORT FORCES

The concept of operations for logistic support consists of multi product "station ships" of the AOE or AOR classes assigned as an integral part of each carrier battle group. The oilers (AO/TAO), ammunition ships (AE/TAE) and stores ships (AFS/TAFS) operate in escorted Underway Replenishment Groups shuttling fuel, ammunitin and stores from either advanced logistic bases within the theater of operations or consolidation points at sea. These shuttle ships are resupplied from merchant tanker and cargo ship deliveries from CONUS or other stocking points. In the event of loss or other non-availability of a station ship, one AO/TAO and one AE may be assigned to the battle group.

Our present force level of station ships is 11 (four AOE, seven AOR) against a requirement of 15 by 1990. The FYDP contains the four AOEs we require to make up this shortfall. The FYDP also includes three ammunition ships and the jumboization of the five AO-177 class oilers from 120K barrel capacity to 180K barrels to match the capacity of the TAO-187 class.

This year we continue the TAO procurement line with a request for two ships. Seven of this class are under contract and the first will deliver in September of 1986. These ships are urquently required to increase oiler force levels and to eventually replace the World War II era ships which are still in service.

MINE COUNTERMEASURE FORCE

Over the past four years the shipbuilding program has begun to address the critical requirement for new mine countermeasures ships. The threat of mine warfare is severe both for U.S. Naval and commercial ports in CONUS and in projected overseas operating areas. Two types of ships are under construction. The larger of the two, the MCM-1 class, is deployable world wide in support of in theater operations. The MSH-1 class is a smaller ship designed for clearance of U.S. military and commercial harbors.

Present plans call for construction of fourteen MCM-1 and seventeen MSH-1 ships. This constitutes a bare bones minimum force and will require sequential clearance of U.S. ports and approaches. It also places a heavy reliance on our allies to clear their own waters.

FISCAL YEAR 1986 SHIPBUILDING REQUEST

In FY 1986 the President's budget requests funding for 23 new construction ships and five conversions. These 28 ships represent those forces required to continue the rebuilding program initiated four years ago to ensure that the U.S Navy has adequate battle forces and supporting forces to be able to respond to our National requirements as they arise. This request reflects negative real growth from the FY 1985 appropriation and is priced to reflect the quantum improvements in acquisition costs which our competitive bid process has engendered.

The plan reflects a stable commitment to shipbuilding and contains very little change from the FY 1986 line of last year's five year plan. The primary change has been in the area of Mobile Logistic ships, where the AOE and AE acquisitions have been delayed while we examine the most cost effective way to support our battle forces.

The ships requested this year fully support the balanced 600 ship Navy which we will achieve in 1989.

A description of each program follows:

TRIDENT—SSBN

At this time, four Trident submarines have commenced deterrent patrols and a fifth ship has been delivered and will commence her first patrol this year. The last four Tridents have been delivered an average of six weeks ahead of schedule. The next three ships will deliver at eight month intervals and we expect early deliveries to continue for these ships. The addition of these ships maintains the high survivability of our SSBN Force and greatly increases the payload and capability of the U.S. strategic deterrent force. The first eight of the class will be delivered with the Trident I C-4 missile. The changeover to the Trident II D-5 missile occurs with the ninth ship which was funded in FY 1981.

For construction of the thirteenth Trident submarine in FY 1986, we are requesting a total of $1531.8 million which includes $245.2 million in advance procurement for the fourteenth and fifteenth ships.

NUCLEAR ATTACK SUBMARINE—SSN-688 CLASS

The FY 1986 shipbuilding budget requests authorization and appropriation for four of this highly successful class of nuclear attack submarine. The four SSN-688s funded in FY 1985 represented the highest number for any year since FY 1974 and reflects a clear understanding on the part of the Congress of the important war-fighting cabability these ships possess. Of the 48 units of this class approved to date, all are under contract and 30 have been delivered with three more scheduled to deliver during the remainder of calendar year 1985.

These ships include the Vertical Launch System (VLS) for Tomahawk as well as enhanced arctic capability, improved quieting and improved SUBACS systems.

The five year plan reflects the introduction of the SSN-21 class in FY 1989. As the SSN-21 class building program ramps up in the early 1990s, the SSN-688 program will be completed.

This year the budget requests $2708.4 million for four SSN-688 class ships. This includes $585.2 million in advance procurement for the FY 1987 and FY 1988 submarines.

BATTLESHIP REACTIVATION

In FY 1986 the President's budget includes $53.5 million in long lead funding for the USS *Wisconsin* (BB 64). This will be the fourth and last of the battleship reactivations requested by the Department.

The contributions of USS *New Jersey* and USS *Iowa* off Central America and Beirut have validated the Secretary's decision to bring these powerful ships back on line. The Congress has been fully supportive and accelerated reactivation of *Missouri* from FY 1985 to FY 1984 utilizing prior year SCN contract savings. The addition of Tomahawk and Harpoon missiles to the awesome firepower of the nine 16" guns coupled with the size and survivability of these ships make them a highly cost effective addition to the Fleet. At this time, it is anticipated that the *Wisconsin* will be reactivated at a private yard on the Altantic or Gulf Coast. When she is recommissioned in early 1989, *Wisconsin* and her three sisters will provide the Navy with unparalleled firepower, both in the open ocean and in the support of amphibious operations ashore. Battleship Surface Action Groups (SAGs) will be utilized in the future to substitute for Carrier Battle Groups in areas where their massive firepower will assist the accomplishment of our national role.

AIRCRAFT CARRIER SERVICE LIFE EXTENSION PROGRAM—CV SLEP

In May of 1985 USS *Forrestal* will complete the Carrier Service Life Extension program and resume her duties with the U.S. Altantic Fleet. As we wind down toward completion of *Forrestal* SLEP it is apparent that the lessons learned from *Saratoga* have been well applied and that *Forrestal* will return to the Fleet with renewed capability and performance. The first SLEP carrier USS *Saratoga*, completed her post SLEP deployment with flying colors and is currently operating out of Norfolk. In April of 1985, USS *Independence* will enter the Philadelphia Naval Shipyard as the third SLEP ship. She will be there for 28 months and is funded in the same manner as *Saratoga* and *Forrestal*. Detailed planning for her SLEP has been in progress for over three years and takes full advantage of lessons learned in both prior ships. The next two carriers to undergo the SLEP program are USS *Kitty Hawk* and USS *Constellation*. Funding for these two ships comprises the CV SLEP funding line across the FYDP. The level of funding for these two Service Life Extensions has been reduced to approximately 64 percent of that provided for the first three ships. This is a reflection of the present material condition of those two carriers and the fact that many of the jobs normally done during the SLEP process have already been accomplished during rountine maintenance periods. Due to work effort involving main engines and flight deck repairs and improvements, the SLEP duration of 28 months will be maintained. Some repairs and service life enhancement features will be accomplished during later overhauls on these ship in lieu of SLEP. For FY 1986, the President's budget requests $133.4 million in advance procurement for the SLEP of USS *Kitty Hawk* which will begin in FY 1987.

GUIDED MISSILE CRUISER—TICONDEROGA CC-47 CLASS

The Aegis Combat System installed in the CG-47 class cruiser includes the most sophisticated anti-air warfare system in the world. It is designed to counter the full spectrum of anti-ship missile threats. During her 1983/1984 deployment to the Mediterranean the ship proved its worth. Because of the complete air picture generated by the Aegis system, launch of alert Combat Air Patrol was reduced significantly resulting in a large fuel savings over previous deployments. The confidence which the battle group commander had in the system permitted him to concentrate on higher level operational problems rather than devoting all his time to the air picture. Upon return from the Mediterranean, the *Ticonderoga* successfully executed a difficult series of missile firing tests under very realistic conditions. Her success has answered all of the critical questions as to the ability of this ship to defend a task force against a high level of threat. It is a superb warship, without equal on the seas today.

During the past year the USS *Yorktown*, the second ship of the class was subjected to rigorous shock tests. The results were excellent and caused only minor and temporary casualties despite the severity of the shock. The Navy Department is continuing to enforce a rigid shock test program which includes all new construction classes.

The three ships approved in FY 1985 bring to 16 the total approved to date. Of this number 12 have been awarded to Ingalls Shipbuilding and four to Bath Iron Works. The introduction of competition has helped reduce the cost of these superb warships and we are now expanding the competitive base to include the Aegis combat system and associated equipments. Four major upgrades have been incorporated into the CG-47 class, VLS (Vertical Launch System) in CG-52, SQQ-89 ASW system in CG-56, SPY-1B radar in CG-59 as well as computer and CPS upgrades in CG-62. Each provides major capability improvements.

In addition to her AAW capability, the *Ticonderoga* class possesses superior capability in ASW and anti-ship Warfare. With the advent of Tomahawk and VLS, the strike warfare potential of this versatile class will increase even more. This year the budget request is for $2766.2 million for three ships of which $14.6 million is for advance procurement associated with multi-year procurement of the 5" MK-45 gun system.

ARLEIGH BURKE CLASS GUIDED MISSILE DESTROYER—DDG-51

The lead ship of this class was appropriated in FY 1985. It is urgently required in the Fleet to replace the DDG-2 and DDG-37 class ships which will begin their retirement in 1989. The *Arleigh Burke* is designed to be affordable in quantity while providing superior warfighting capability to the Fleet. Last year the Congress reduced the Defense Department's request for the lead ship by $123.4 million. Bids have been received from builders for the lead ship and the award will be made in March within appropriated funds. This year, we are requesting $164 million in advance procurement for the follow ships to be funded in FY 1987.

In order to keep the price of these ships as low as possible, further competition will be introduced in FY 1987 with a second shipyard brought on line and a third builder in FY 1988 when we ramp up to a sustained production rate of five per year. We are closely adhering to Congressional guidance in the second source acquisition of Government Furnished Equipment for the class.

LANDING SHIP DOCK—LSD-41 CLASS

To date the Congress has authorized and appropriated six LSD-41 class ships. The first ship of the class, *USS Whidbey Island* (LSD-41), was commissioned on 9 February 1985 and has begun its shakedown/workup period. These ships were designed to transport four Landing Craft Air Cushion (LCAC) each and will add tremendous flexibility to the amphibious assault mission when they enter service. This class of ships collectively permits large numbers of loaded LCAC to be launched in a short period of time to attack hostile shores at high speed from over the horizon.

The two LSD-41s requested in FY 1986 are the seventh and eighth of the class. This meets the force objective for the LSD-41. The five year shipbuilding plan displays the start of construction in FY 1988 for a cargo carrying variant of the LSD-41 which will be required to meet the Marine Corps lift objectives by 1994.

This year we are requesting $414.4 million in full funding for two ships. $83.5 million was appropriated in FY 1985 as long lead funding for these ships. The Navy holds fixed price options from Avondale Ship Industries for the construction of these ships.

AMPHIBIOUS ASSAULT SHIP—LHD-1

The LHD-1 class is a multi-purpose amphibious assault ship that is designed to be the linch-pin of our over-the-horizon amphibious force of the 1990s and beyond. The most capable and versatile amphibious ship ever built, the LHD does more than any other amphibious program to close the gap between current amphibious capabilities and actual requirements. As a replacement for our aging LPH class Helicopter Assault Ships, the LHD will significantly increase total lift capability, provide a flight deck for helicopters and VSTOL aircraft and a large well deck for both air cushion and conventional landing craft. The LHD is a modification of the LHA class. The first was funded in the FY 1984 budget and in under construction at Ingalls Shipbuilding. The ship will deliver in March 1989. The FY 1985 budget authorized and appropriated $39.2 million in advance procurement for the FY 1986 ship. This year the budget request is for $1507.2 million which includes $329.3 million for long lead equipment and minor fabrication of the LHD-3 and LHD-4. The procurement strategy envisions a contract for three ships being awarded to the winner of the competitive bid process. The LHD-2 would be fully funded with equipment procurement and minor fabrication on the LHD-3 and LHD-4 begun on a termination liability funding basis. Those ships would be fully funded in FY 1988 and FY 1989 respectively. The savings from this multi-year proposal are about $820 milllion and the ships will deliver to the Navy at least 33 months earlier than if procured on an annual basis.

MINE COUNTERMEASURES SHIP—MCM-1

The MCM-1 AVENGER, funded in the FY 1982 budget was the first mine countermeasures ship to be build for the U.S. Navy since the mid 1950s. Only three of the obsolete MSO class are still in the active Fleet and 18 others remain on duty with the Naval Reserve Force. The Soviet Union has a large number of sophisticated mines in their inventory which require modern detection and clearance techniques which the older MSOs do not possess. This new ship has a wooden hull and non-magnetic machinery to minimize danger from magnetic mines and contains state-of-the-art navigation, mine hunting and mine neutralization hardware. To date nine of the 14 MCM-1 class ships required by the Navy have been approved by the Congress and the ships are in series production at Peterson Shipbuilders and Marinette Marine. This year the budget request is for $334.1 million for the tenth through thirteenth ships of the class.

MINE SWEEPER HUNTER—MSH-1 CLASS

To complement the MCM the Navy requires a class of small but sophisticated mine countermeasures ships which are capable of clearing U.S. ports in time of crisis. After an intense period of competition, the lead ship of the *Cardinal* class was awarded in November of 1984 to Bell Aerospace/Textron of New Orleans, LA. The contract includes not only the lead ship but fixed price options for up to four MSHs in FY-86 and four in FY-87.

The MSH will be built as a surface effect ship using glass reinforced plastic as the hull construction material. In order to minimize R&D requirements, the MSH will utilize much of the same mission equipment as the MCM class. These ships will be operated by the Naval Reserve Force and will replace the obsolete MSO class ships currently in the NRF. No element of our Navy is as deficient in capability against the threat as is the Mine Countermeasures Force. We must proceed to build up our MCM/MSH Force level as rapidly as possible. This year we are requesting $184.5 million for the first four follow ships of the MSH-1 class.

FLEET OILER—TAO-187 CLASS

FY 1986 represents the fifth year of funding for the TAO-187 class.

This class of oiler is an austere fleet ship built to commercial standards except in mission critical areas where military specification have been utilized. It will be manned by civil service (MSC) mariners augmented by a small Navy communications detachment. Navy studies indicate a requirement for at least 20 ships of this class and more than that if the AO-177 class is not jumboized. During the period FY 1982-1985 seven TAOs have been appropriated. The first four are under construction at Avondale. These ships are all on schedule and within budget. The FY-85 contract will include fixed price options for TAO construction in FY 1986 and FY 1987. For FY 1986, we are requesting $328.5 million for two ships.

OCEAN SURVEILLANCE SHIP—TAGOS

At the present time 12 ships of this class are under contract to Tacoma Boatbuilding. The fourth of the class was just delivered to the Navy on 15 February and the first ship is now on station in the Atlantic. Test results from the ship and its towed array have been excellent. The fiscal difficulties experienced by the lead builder over the past year have abated and deliveries are proceeding in a timely fashion. In addition, the Navy will award a competitive contract in March 1985 for the construction of the two TAGOS authorized and appropriated in FY 1985. These ships will be as identical as possible to the first 12. The FY 1985 contract will include fixed price options for four more TAGOS during the period FY 1986–1987. The total requirement for TAGOS ships is 26 with 14 appropriated. This year the President's budget request is $115.1 million for two TAGOS. This amount includes $1.2 million in advance procurement for the engines for the FY 1987 ships. This funding is required since the engine manufacturer has advised the Navy of his intention to shut down the engine production line prior to the time that FY 1987 funds would be available.

ACOUSTIC RESEARCH SHIP—AG

The FY 1986 budget requests $68.9 million to fund the conversion of the former USNS *Hayes* (TAGOR-16), to an acoustic research ship. In this mission, she will replace an existing craft which is over 40 years old and no longer capable of providing required services in support of the Submarine Noise Reduction Program. *Hayes* will provide a quiet platform for submarine acoustic measurement to ensure that our first line submarine forces retain the technological advantage which is so critical to our at sea operations.

AUXILIARY CRANE SHIP—TACS

Fiscal year 1985 marked the transition of funding for the TACS program from other appropriations to the SCN account. Prior to FY 1985 two ships had been funded in other appropriations with the third of the class funded at a level of $36.0 million in SCN in FY 1985 for one ship. For FY 1986, the President's budget requests $82.5 million for three TACS conversions. The purpose of these ships is to offload containers and other outsized cargo from non-self-sustaining cargo ships; either offshore or in undeveloped or damaged ports. A total of ten TACS have been funded or are included in the five year plan. Final class size is under review and may increase as the size of the Ready Reserve Force is enlarged to accommodate the declining U.S. Merchant Marine. Offloading tests conducted with the lead ship have been highly successful. A mix of C5 and C6 merchant hulls are utilized for this program and in addition to offloading other ships, their own cargo capability will be utilized.

AVIATION LOGISTICS SUPPORT SHIP—TAVB

This program converts two government owned Seabridge class ships of the Ready Reserve Force (RRF) to the capability to load the vans and equipment of a Marine Aviation Intermediate Maintenance Activity and transport them to the desired in-theater location. These ships have a combination Roll On/Roll Off (RO/RO) and self sustaining container ship configuration which will permit them to self offload alongside a pier or from offshore. After the Aviation IMA is offloaded the TAVB can revert to a standard sealift role if required. Due to a reduction of $[illegible]1.0 million imposed by the appropriation bill on the FY 1985 request, funding for the FY 1985 ship is extremely tight and the possibility of a cost overrun exists if mandatory repairs exceed the minimum amount of funds reserved for growth and changes. Conversely, the FY 1986 program is considered properly funded with a request of $26.9 million in the FY 1986 budget. In addition, $5.2 million in advance procurement from FY 1985 is available for the second ship.

CRAFT

The FY 1986 request for craft includes $79.5 million for a variety of service craft and $34.4 million in the landing craft line for three Special Warfare Craft (Medium). In the service craft line we are requesting the lead ship of a new class of Torpedo Range Tenders (YFRT). This craft will fire torpedoes for proofing shots and conduct some RDT&E firings. They are able to recover sunken weapons and provide target support, range maintenance and other functions. They are of increasing importance to us now as the development of our new MK-50 Advance light weight torpedo and MK-48 ADCAP itensifies. The six Yard Patrol Craft (YP) requested this year complete the replacement program for training at the U.S. Naval Academy and NETC Newport. YPs which are being replaced will be utilized in the Craft of Opportunity Program (COOP) and for officer training at the Surface Warfare Officers school in Coronado, California and also to train submarine officers in ship handling skills. Two YDs or floating cranes are in the program for $13.2 million as part of a program to replace World War II cranes. The YCs and YFNs are also part of any ongoing inventory replacement program.

LANDING CRAFT AIR CUSHION—LCAC

The LCAC provides a revolutionary capability to Amphibious Warfare. It will give the Navy-Marine Corps team a capability to launch amphibious assaults from over-the-horizon, thereby decreasing risk to our ships and increasing our ability to surprise the enemy defender. The mere presence of an air cushion capability in the Amphibious Task force greatly complicates the enemy's efforts to mass an adequate force to repel the assault by increasing the number of potential landing sites he must defend.

FY-86 will be the fifth year of LCAC production with 21 craft having been appropriated to date. The first craft was delivered to the Navy in December 1984, and will be included in the first six to be made operational on the west coast by the summer of 1986. These craft can be carried in varying numbers in LSDs, LHAs, LPDs and LHDs, and we have tailored our force levels and ship configurations to accommodate the 90 LCAC needed to support a MAF and a MAB.

This year Navy is requesting $307.5 million for twelve LCACs which includes $30.8 million in advance procurement for future production. Production requirements will be split between a lead yard and a second source. A total of 60 LCACs are contained in the five year plan submitted with the FY-86 budget.

MOORED TRAINING SHIP DEMONSTRATION—MTSD

The construction of a shore based nuclear plant is an expensive and time consuming process. Over the next few years, several of the nuclear facilities utilized to train personnel for service on nuclear powered submarines and surface ships will reach the end of their normal service lives. In FY 1985 the Congress appropriated $30.0 million in advance procurement funding leading to the conversion of a nuclear submarine to pier side training duty. Utilization of a ship in this role will save hundreds of millions of dollars in construction costs and permit economic, state-of-the-art training with minimum capital expenditures. The request for FY 1986 is for $26.5 million in long lead funding. A full funding request for FY 1987 is not included in the FYDP pending identification of the precise hull to be utilized and completion of final cost requirements based on that individual ship.

OUTFITTING/POST DELIVERY

This year the request for outfitting is $228.5 million. This funds Government Funded repair parts and other material, including stock fund items and general use consummables required to fill a ship initial allowance for storeroom and operating space items. The Post Delivery line funds all work, including related design, planning and procurement of government furnished material (GFM) required for correction of defects or deficiencies identified during trials or the post delivery period. In FY 1986 the Post Delivery requirement is for $112.6 million. Both of these lines are a function of the number and mix of ship types which will deliver during the fiscal year.

STRATEGIC SEALIFT--RRF

Over a period of many years the size of the U.S. Merchant Marine has decreased to the point that its ability to support Defense requirements in times of crisis has become doubtful. In FY 1984, the Department requested funds to purchase ships from industry which were no longer commercially viable in order to build up the Ready Reserve Force to ensure adequate sealift. As the U.S. Merchant Marine continues to shrink, the planned goal for the RRF has grown accordingly from 77 ships in 1984 (61 day cargo ships and 16 tankers) to 116 ships at present (100 dry cargo, 16 tankers). As of 1 January 1985 the RRF consisted of 64 ships (one Auxiliary Crane Ship, eight tankers, 55 dry cargo ships). In FY-86 we would like to purchase at leat 10 RO/RO ships, two LASH ships and two container ships. The exact number of ships purchased will depend on the number offered to the government and the asking price.

Mr. Chairman, that concludes my presentation. I appreciate this opportunity to present the Navy's shipbuilding request for fiscal year 1986. I hope this material will be of assistance to you as you begin your deliberations on the DoD Authorization Bill. For many years the Committee has given the Navy Shipbuilding program your full and unstinting support and I respectfully solicit a continuation of that understanding.

PREPARED STATEMENT OF VICE ADM. J. METCALF III, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE, FISCAL YEAR 1986 WEAPONS PROCUREMENT, NAVY

Mr. Chairman and distinguished members of the Subcommittee, it is my privilege to appear before you to present the munitions requirements for the U.S. Navy contained in the Weapons Procurement, Navy (WPN) appropriation fiscal year 1986 Budget Request and those items which require authorization in fiscal year 1987.

The overall fiscal year 1986 WPN request is for $5.628 billion. This represents a 29 percent increase over last year's appropriation of $4.354 billion. In terms of real growth, the increase is 23 percent. This substantial growth reflects the Navy's commitment to match procurement of munitions to the 600 ship Navy.

In recent years, Congress, and this subcommittee in particular, have consistently shown a determination to fund a steady increase in munitions inventories, with the goal of attaining objectives consistent with our warfighting needs. As can be seen in Figure 1, WPN funding has increased over 200 percent since 1981. This contrasts sharply with the lack of growth evident from 1977 through 1980. This determination is paying off. Crossdecking of ordnance has declined in fiscal year 1984 and will continue to do so as ordnance procured with fiscal year 1982 through 1985 funding is delivered to the fleet. Moreover, as shown in Figure 2, the expanded production levels have led to reductions in unit costs of some of our most important weapons. Costs have come down because higher procurements enable primary and subcontractors to order supplies in economic lots and operate their facilities at efficient levels.

FIGURE 1

WPN FUNDING TREND

(BUDGET DOLLARS)

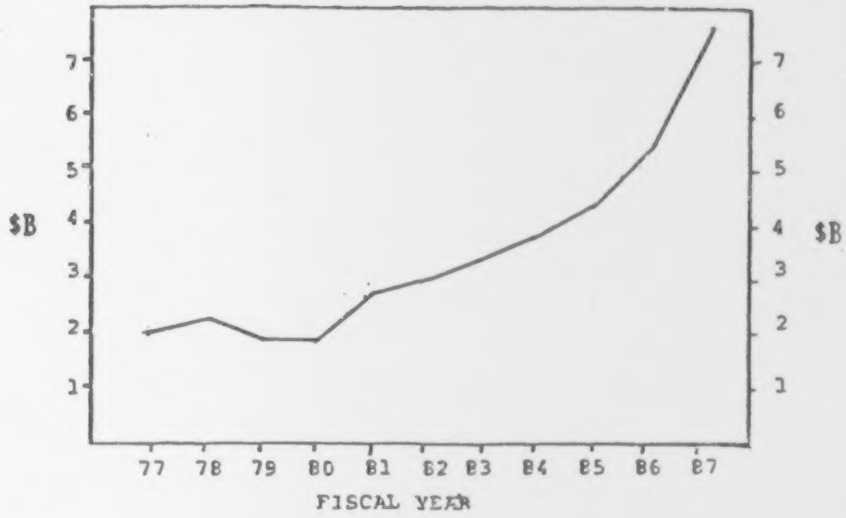


FIGURE 2

MORE BANG FOR THE BUCK

INCREASED PROCUREMENT = REDUCED UNIT COST*

(DOLLARS IN THOUSANDS)

WEAPON	FY85		FY86		DOLLAR REDUCTION	PERCENT REDUCTION
	Q	U/C	Q	U/C		
HELLFIRE	438	$ 58	1304	$ 43	$ 15	25
LASER MAVERICK	600	$172	1500	$133	$ 39	23
HARM	813	$349	904	$295	$ 54	15
SM-2 ER	255	$780	470	$673	$107	14
SM-2 MR	529	$690	846	$615	$ 75	11
TOMAHAWK	180	$3200	249	$3100	$100	3

*Procurement unit cost. Includes spares.

The Navy's procurement policies emphasize plans to continue and accelerate the trend of more weapons for the money. In addition to increasing funding for ordnance, we intend to get the most out of every dollar appropriated through extensive use of multiyear contracts, competition, and rigorous oversight of budget execution.

Our determination to improve our management of procurement funding is demonstrated by a major change to the structure of the WPN appropriation. Traditionally the appropriation has consisted of four Budget Activities, each containing similar line items. There are:

Activity One, Ballistic Missiles.

Activity Two, Other Missiles.

Activity Three, Torpedoes and Related Equipment.

Activity Four, Gun Systems and Small Arms.

This year these four budget activities have been retained, but a fifth activity, Spares and Repair Parts, has been added. This change is a mechanism to improve the management of spares procurement. Spares were formerly listed in the same budget activitiy as the end item with which they were associated. Segregation of all spares increases the visibility of related funding and procurement decisions. The result is a commensurate improvement in our ability to monitor determination of spares requirements during program development and more thoroughly evaluate performance during budget reviews.

Of immediate concern for our purposes here is how the Navy intends to spend the money it is requesting to improve warfighting capabilities. I have chosen to present the Navy's case for the funds we've requested by structuring my testimony around the "Four Pillars" concept. Let me explain. We say that there are four pillars, or supports, of the overall Navy program. These are Force Structure, Warfighting Improvement, Readiness and Sustainability. The four pillars help illustrate our balance between money for future capabilities (Force Structure, Warfighting Improvement) and money for present capabilities (Readiness, Sustainability). The first pillar, *Force Structure*, refers to acquisition of ships and aircraft. While we don't procure these items in the WPN account, we do pay close attention to the SCN and APN appropriations in determining the quantity of weapons necessary. WPN does fund a significant part of the Navy's second pillar, Warfighting Improvement. Warfighting Improvement is represented within WPN by the procurement of new gun mounts for existing ships and by funding of modifications to weapons already in our inventory. Readiness is concerned with training and the maintenance of equipment. In WPN, readiness funding procures antiair and antisubmarine targets, weapons range services, rework of weapons used in training exercises and spare parts.

While warfighting improvement and readiness funding are important parts of the WPN appropriation, the *Sustainability Pillar* is its heart. Ordnance sustainability is the adequacy of our weapons inventories to meet the requirements of contingencies and wartime operations. Put another way, sustainability is our *staying power*. Sustainability procurement is defined as the acquisition of ordnance, war reserve suppleis and procurement in support of the naval reserve. Of the Navy's overall budget, about 8 percent goes for sustainability. Over 60 percent of that is for ordance. Within WPN, sustainability procurement (missiles, torpedoes) accounts for 71 percent of the funding requested.

Figure 3 displays the balance between readiness, warfighting improvement and sustainability within the WPN budget request. Warfighting improvement is 9 percent, readiness 20 percent and sustainability over 71 percent.

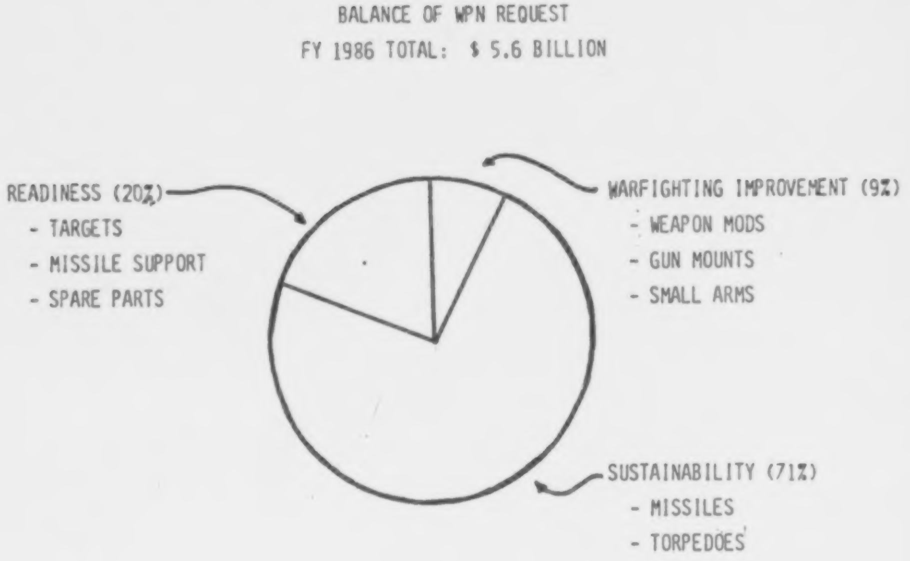


FIGURE 3

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Let's turn to the individual WPN items and discuss the Navy's fiscal year 1986 request in terms of the Four Pillars. In order to concentrate on major issues, I have provided summarized details of the funding request in a series of charts. The items are grouped by "Pillars" to help illustrate the use of the funding requested. Each chart shows the fiscal year 1986 budget request and authorization items for fiscal year 1987. For purposes of comparison, the quantities of weapons and funds appropriate in fiscal year 1985 are also displayed.

SUSTAINABILITY PROCUREMENT

The initial focus is on our Sustainability Pillar. Figures 4 through 7 itemize the fiscal year 1986 budget request for missiles and torpedoes.

The submarine based strategic ballistic missile force is the cornerstone of the nation's nuclear deterrent and the most survivable element of the Strategic Triad. The introduction of Trident II missiles will further enhance the credibility of the Triad through increased payload, range, and accuracy. The Trident II, which will replace Poseidon and Trident I missiles, has a scheduled initial operational capability of 1989. It will be installed in all OHIO class submarines commencing with the ship funded in FY 1981 and will be backfitted in all earlier ships during their first overhaul. While the first procurement of missiles will be in FY 1987, this year's funding request (Figure 4) is essential to a timely production start and meeting initial operational capability. It consists of $269.3 million advance procurement funding for preproduction long lead and production continuity material and $312.7 million for procurement of reentry systems and production support.

Also shown in Figure 4 is the Navy's funding request for Tomahawk and Harpoon cruise missiles.

Figure 4

ORDNANCE SUSTAINABILITY PROCUREMENT: BALLISTIC AND CRUISE MISSILES

	FY 1985		FY 1986		FY 1987		
WEAPON	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
TRIDENT II	-	162.9	-	582.0	27	1863.3	Increased range, payload accuracy compared to TRIDENT I. FY 1986 funding is for production planning, initial outfitting, re-entry system procurement.
TOMAHAWK	180	549.6	249	734.8	330	859.8	Anti-ship (TASM) and Nuclear land attack (TLAM-N) versions operational. Conventional Land Attack under development (TLAM-C). Launched from surface ships and submarines. TASM uses modified HARPOON guidance system. TLAM models use inertial and terrain matching guidance system. Competitive dual source procurement.
HARPOON	354	283.6	395	314.9	153	184.9	Ship, submarine, aircraft launched anti-ship cruise missile. Radar guidance system.

The Tomahawk Cruise Missile Weapons System is a family of exceptionally accurate, long range missiles consisting of nuclear land attack, conventional land attack and conventional anti-ship variants. With the deployment of this most significant weapon system in our battleships, cruisers, destroyers and submarines, the Navy will move from 14-15 strike platforms (aircraft carriers) to more than 175 offensive platforms. This expansion and distribution of the fleet's firepower will vastly complicate any enemy's targeting problem while providing battle group commanders with a wider range of strike options. Most importantly, the nuclear land attack Tomahawk provides the United States with a viable enhancement to our strategic deterrent force.

At the end of calendar year 1984 there were 14 Tomahawk platforms certified with an additional 14 scheduled to be certified in calendar year 1985.

Tomahawk missiles are procured through dual source competition, with General Dynamics, Convair Division, of San Diego, California and McDonnell Douglas Astronautics Company, of St. Louis, Missouri as the prime contractors. Under this competition we will be able to control procurement costs and maintain a high quality manufacturing capability for Tomahawk production in the years to come. Additionally, a broad production base is being established for increased production rates if required.

Harpoon is an exceptionally versatile anti-ship missile capable of launch from ships, submarines and aircraft. This hard hitting, radar guided weapon has shown a reliability of over 90 percent in tests and fleet exercises. Negotiations for the fiscal year 1984 Harpoon procurement contract resulted in ceiling prices for 1985 and 1986 which will significantly reduce the unit cost in fiscal 1985 and will allow Navy to buy more missiles for the money in fiscal 1986.

Figure 5 provides a summary of our request for Phoenix, Sparrow and Sidewinder air-to-air missiles. The Navy's fighter aircraft, using these missiles, provide the first line of defense of carrier battle groups. AIM-54C Phoenix, teamed with the F-14 air defense fighter, represents an unmatched long range capability against high speed, high altitude targets and possesses the unique ability to conduct near-simultaneous multiple engagements against incoming aircraft. AIM-7M Sparrow is a versatile medium range missile used by both the F-14 and the F/A-18. Compared to its immediate predecessor (the AIM-7F), this variant of Sparrow incorporates a new low altitude active fuse and a target seeker featuring improved missile guidance performance in electronic countermeasures and clutter environments. Similarly, the AIM-9M Sidewinder, introduced in 1982, has a significantly improved infrared countermeasure capability compared to earlier versions. This missile, which equips all Navy fighters and tactical attack aircraft, is the Free World's premier short range dogfight missile.

Figure 5

ORDNANCE SUSTAINABILITY PROCUREMENT: AIR-TO-AIR MISSILES

	FY 1985		FY 1986		FY 1987		
WEAPON	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
PHOENIX (AIM-54C)	265	338.4	265	381.9	420	520.3	All weather, long range Semi-active, mid-course guidance. Specifically designed for F-14. "C" version in production since 1980.
SPARROW (AIM-7M)	1671	290.0	1872	368.7	1910	368.1	Semi-active guidance medium range. Used by F-14, F/A-18. Modified version, RIM-7M, used by surface ships in NATO Sea Sparrow point defense system.
SIDEWINDER (AIM-9M)	1000	68.5	1220	93.8	1168	89.0	Short range. Infrared seeker. Used on all fighters and many attack aircraft. Latest version includes improved anti-countermeasures capability and enhanced capability against targets in "IR cluttered" background.

Phoenix related production problems at Hughes Aircraft Co., Tucson plant have been widely publicized. Allow me to briefly summarize the history of the problem and the current situation. Quality assurance deficiencies were detected in early June 1984 as a result of a Navy initiated teardown inspection of a production Phoenix missile. Follow-up inspections confirmed that the contractor's existing quality assurance system was inadequate, and the Navy stopped accepting Phoenix missiles on 22 June. Subsequently, Hughes developed and executed a plantwide Corrective Action Plan which is fully acceptable to the Navy. Contractor performance is being monitored on the basis of quality assurance tracking indices developed by the Naval Material Command. Production rate increases will be tied to successful achievement of established thresholds. Delivery of missiles commenced in February 1985.

Phoenix is unequivocally the most sophisticated and capable air to air missile in the world today. Because of its crucial contribution to fleet air defense and our low inventory posture, the Navy is planning to initiate competitive dual source procurement of Phoenix by 1989. Accordingly, the fiscal year 1986 funding requested includes $92.9 million for qualification, missiles and engineering work necessary to support this effort. To further expedite this vital program, the Navy will request a fiscal year 1985 reprogramming action of $85.3 million to conduct the requisite engineering studies, select and initiate qualification of the second prime contractor and commence procurement of tooling hardward. This plan will result in directed production missiles from the second contractor in fiscal 1987 and 1988, with full competition commencing with the fiscal 1989 procurement.

As shown in Figure 6, the Navy procures five air-to-ground missiles through WPN funding. These weapons are critical to Navy and Marine Corps tactical aircraft in the performance of their combat attack missions, including anti-ship operations, ground support, defense suppression and interdiction missions.

Figure 6

ORDNANCE SUSTAINABILITY PROCUREMENT: AIR-TO-GROUND MISSILES

	FY 1985		FY 1986		FY 1987		
WEAPON	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
HARM (AGM-88A)	813	278.2	904	258.0	1177	297.7	Succeeds ARM, SHRIKE as primary anti-radiation, defense suppression missile. Increased velocity, greater range, improved sensitivity. Used by A-7E, F/A-18, A-6E aircraft.
SIDEARM	-	-	168	20.5	205	13.9	Short range anti-radiation missile. Converted from early SIDEWINDER missiles. Intended for MARINE CORPS AH-1 helicopters.
HELLFIRE	438	25.2	1304	55.1	1384	52.0	Semi-active, laser guided anti-armor weapon for Marine Corps AH-IT/J helicopters. Procured through Army.
LASER MAVERICK	600	103.0	1500	194.3	1800	209.8	Semi-active laser guidance. Penetrating, blast-fragmentation warhead. Used for close air support, battlefield interdiction.
IIR MAVERICK (AGM-65F)	-	-	195	27.8	419	54.9	Infrared seeker, optimized for ship targets. Warhead and fuse same as LASER MAVERICK. Will be used by A-6, A-7, F/A-18, AV-8B.

In FY 1986, the Navy is requesting funds for two anti-radiation missiles. HARM is a *H*igh speed, *A*nti-*R*adiation *M*issile to destroy or suppress land and sea-based radars supporting enemy air defense systems. HARM began fleet service in 1984, and will be deployed on the A-7E, F/A-18, EA-6B and A-6E aircraft. It will correct the operational deficiencies prevalent in earlier anti-radiation missiles through increased speed, greater range, a low smoke motor, improved sensitivity, in-flight retargeting, and the frequency band coverage needed to counter the current threat. This is our initial request for *Side*winder *A*nti-*R*adiation *M*issile. SIDEARM is a short range, limited frequency band, anti-radiation missile being developed on an accelerated basis for employment on the Marine AH-1 helicopters to counter point defenses. Existing AIM-9C guidance and control sections will be modified to provide the missile's homing capability and the remainder of the missile will consist of current production Sidewinder components. Both HARM and SIDEARM will greatly enhance our ability to conduct tactical air missions effectively with reduced loss rates.

The Navy is requesting funding for two versions of the Maverick missile. Laser Maverick is an air-to-surface short range missile which will be used in the close air support/battlefield interdiction mission within the Amphibious Objective Area (AOA) and in deep support for the destruction of targets outside the AOA. The missile is a variant of the Air Force's TV Maverick modified to incorporate a semi-active laser seeker, a larger (300 lb. vs 125 lb.) general purpose blast/penetration warhead with a selectable delay time fuze, and a reduced smoke rocket motor. While planned primarily for marine Corps use, it will be employed with a single rail launcher adaptable to both Navy and Marine Corps tactical aircraft. The second version, IIR Marverick (AGM-65F) is an air-launched, direct attack weapon for day or night use against ship and land targets. The seeker is imaging infrared, similar to the Air Force IIR Maverick. It incorporates the same warhead and reduced smoke motor used in Laser Maverick. This missile will be fired from the A-7, F/A-18, A-6, and AV-8B aircraft.

The final air-to-ground missile is Hellfire, which will be used on USMC AH-1 helicopters as an anti-armor weapon. This semi-active, laser guided missile is procured through the Army. Its laser fire control system allows increased aircraft maneuverability during the attack phase with the result that a flight path can be used which minimizes exposure to enemy ground fire.

The Standard family of area defense missiles (Figure 7) provides the Navy's front line surface-to-air defense against enemy aircraft and cruise missiles. Standard missile is currently produced in three versions; SM-1 medium range (MR) Block VI (A), SM-2 medium range (MR) Block II, and SM-2 extended range (ER) Block II. The SM-2 missile incorporates significant technical advances that greatly improve range, accuracy, and electronic countermeasure resistance when compared to SM-1. The Block II version of SM-2 that we are currently producing features all digital guidance, improved fuzing, a more capable warhead, and advances in propulsion technology that are necessary to defeat an increasingly capable threat.

Figure 7

ORDNANCE SUSTAINABILITY PROCUREMENT: SURFACE-TO-AIR MISSILES

	FY 1985		FY 1986		FY 1987		
WEAPON	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
SM-1 (MR)	600	199.3	-	35.9	300	134.1	Medium range area defense weapon for missile frigates, C.F. ADAMS class destroyers. Also arms KIDD, CALIFORNIA, VIRGINIA classes prior to SM-2MR conversion.
SM-2 (MR)	529	355.0	846	509.7	900	527.0	Air defense weapon for TICONDEROGA class AEGIS cruisers, ARLIEGH Burke class AEGIS destroyers and KIDD, CALIFORNIA, VIRGINIA classes with New Threat Upgrade (NTU) conversion.
SM-2 (ER)	255	186.7	470	312.2	600	365.9	Extended range missile used on LEAHY, BELKNAP, BAINBRIDGE, TRUXTON, LONG BEACH class cruisers with NTU conversion.
SM-2 (Specific Applications)	-	-	-	-	-	10.0	Funding for DOD components of SM-2 nuclear warhead.
RAM (Rolling Airframe Missile)	30	20.4	117	44.7	400	112.7	Provides close range anti-missile defense. Dual mode passive radar frequency/infrared guidance will equip variety of combatants, amphibious and auxiliary ships.

The SM-2 (MR) Block II missile will be the primary air defense weapon for 27 *Ticonderoga* class AEGIS cruisers, 29 *California, Virginia,* and *Kidd* class ships that will receive the Tarter New Threat Upgrade conversion. Similarly, SM-2 (ER) Block II will be the primary air defense weapon for 21 guided missile cruisers and 1 guided missile destroyer planned to receive the Terrier New Threat Upgrade conversion. When teamed with our AEGIS and NTU combatants, SM-2 provides the ability to conduct nearly simultaneous multiple engagements against high and low profile missiles and aircraft. This capability is essential in the potential environment of high volume attacks we face now and in the 1990's.

As shown in Figure 7, our entire fiscal year 1986 request is for the SM-2 version of Standard. Given the pressure of financial constraints and the need to maximize production of SM-2MR/ER for our highly capable AEGIS and NTU cruisers and destroyers, we have elected to stretch the procurement of the 600 SM-1MR missiles appropriated last year over both 1985 and 1986. This will allow us to maintain the production base until our next procurement of SM-1MR in fiscal 1987. At that time continued procurement of SM-1MR will be necessary to ensure that our 51 FFG-7 class ships have an adequate supply of the latest, most capable Block VI (A) version. We have been able to backfit many of the SM-2 guidance and ordnance improvements into SM-1MR to ensure these ships' primary weapon remains effective against aircraft and missile threats.

*R*olling *A*irframe *M*issile (RAM) is being developed to provide a high firepower self defense system against anti-ship missiles. RAM will have a dual-mode passive radar frequency/infrared guidance system. This system will be installed aboard combatants, amphibious ships and auxiliaries to complement other anit-missile systems such as Phalanx and Sea Sparrow. RAM will be fired from Sea Sparrow launchers with two cells modified to hold 5 missiles each and from a 21 cell stand-alone launcher. The RAM missile, RAM ORDALT for the Sea Sparrow launcher, and the stand-alone launcher are now in full scale development. The RAM program is a cooperative effort with West Germany and Denmark. The fiscal year 1986 request contains $41.1 million for procurement of test and tooling equipment, and 117 missiles. The Navy plans dual source procurement of RAM and has included $3.6 million in fiscal 1986 and $42.0 million in fiscal 1987 for second source selection, qualification, engineering support and necessary hardware.

Since the WPN testmony last year, we have realigned our procurement plans for both the multipurpose heavyweight torpedoes used by submarines and the lightweight torpedoes which serve as the main ASW weapon of surface combatants and aircraft.

The Navy is in the process of introducing the submarine launched MK-48 Advanced Capability (ADCAP) heavyweight torpedo as the front line replacement for the MK-48 MOD 4. Let me emphasize that the MK-48 ADCAP gives us a major leap in capability over the MK-48 MOD 4. Changes in the guidance and control system improve its effectiveness against quiet, anechoic coated submarines. Advanced technology will provide improved performance under ice in shallow water, high seas and in conditions of strong thermal gradiants. Moreover, improvements in propulsion will lead to the speed and deep diving capability required to meet the current and developing threat. The MK-48 ADCAP is successfully undergoing a most strenuous development program. This torpedo will meet the challenge of the deep diving, high speed submarine through the 1990's and is essential to maintaining the viability of our attack submarine force.

In last year's budget request the Navy planned to procure heavyweight MK-48 MOD 4 torpedoes at the annual rate of 144 in both 1985 and 1986, with 1986 the final procurement year. The new MK-48 Advanced Capability (ADCAP) version would have been phased in by means of kit conversions from earlier MK-48 torpedoes starting in fiscal year 1985. Initial procurement of all-up rounds of MK-48 ADCAP was planned for 1987. Subsequently, based on our continuing analysis of both the economic and developmental aspects of the MK-48 ADCAP program and the sense of Congress expressed during the fiscal year 1985 budget deliberations, the acquisition plan was revised. First, the MK-48 MOD 4 program will terminate with a reduced buy of 108 torpedoes in fiscal year 1985. Second, procurement of ADCAP will be in the form of all-up rounds from the start (30 in fiscal 1985), instead of modification kits. This year's request, as displayed in Figure 8, is an extension of that decision. It features a build-up in procurement of MK-48 ADCAP torpedoes at a rate which will be compatible with the production learning curve, with 123 planned this year and 280 in 1987.

FIGURE 8

ORDNANCE SUSTAINABILITY PROCUREMENT: TORPEDOES AND OTHER ASW WEAPONS

	FY 1985		FY 1986		FY 1987		
WEAPON	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
MK-48 ADCAP	30	$105.6	123	$417.4	280	$622.6	Most advanced sub-launched heavyweight torpedo. Capable against surface and submerged targets.
MK-48 MOD 4	108	$ 89.0	-	-	-	-	FY 1985 is last procurement. MK-48 MOD 4 remains capable sub-launched multipurpose weapon. Will remain in service through mid-90's.
MK-46 NEARTIP	1565	$229.7	500	$129.1	500	$106.8	Current front-line lightweight ASW torpedo used by aircraft, helicopters, surface ships. Will remain in service through mid-90's.
MK-46 MODS	-	$ 2.3	672	$100.3	672	88.8	MODS line converts early model MK-46's to CAPTOR use through FY 1985. Commencing FY 1986, converts early models to NEARTIP configuration.
MK-50 ALWT	-	-	-	-	84	$117.0	Advanced ASW torpedo for aircraft and surface ships. Capable against all threats through 1990's.
MK-60 CAPTOR	300	$122.0	-	-	-	-	Moored ASW mine employing MK-46 MOD 4 torpedo as payload. Procurement complete with FY 1985 purchase.
MK-67 MOBILE MINE	280	$ 22.6	280	$ 23.7	273	$ 26.1	Submarine launched bottom laid mine converted from MK-37 torpedo.
VERTICAL LAUNCHED ASROC	-	-	-	-	250	$ 71.1	Standoff ASW weapon for vertical launcher equipped ships (DD 963, CG 52, DDG 51 classes), Payload is MK-46 NEARTIP or MK-50 ALWT.
SWIMMER WEAPON SYSTEM	-	$ 1.6	-	$ 1.5	-	$ 4.2	Standoff weapon for use by Special Warfare Groups.

The Navy's MK-46 program for fiscal year 1986 and 1987 reflects both a slowdown in procurement of new all-up rounds and increased conversion of earlier models to the most effective configuration. Although the MK-46 torpedo was first introduced in 1966, its capabilities against the modern submarine have been progressively improved through design modifications which have enhanced its acoustic system and ability to resist countermeasures. The latest version is the MK-46 MOD-5 Neartip, or Near Term Improvement. Neartip will be a capable weapon against the majority of threats and will be the backbone of our torpedo inventory well into the 1990's. However, since the enhanced capability MK-50 *A*dvanced *L*ight*W*eight *T*orpedo (ALWT) will begin entering service in the late 1980's, it is appropriate to start winding down procurement of new MK-46 MOD 5 torpedoes this year. Accordingly, instead of the 1521 torpedoes which were originally projected in fiscal year 1986, the Navy is requesting 500 new MK-46 MOD 5's and will continue production at that level in 1987 and 1988. At the same time, funding for torpedo modifications will be used to upgrade early model MK-46's to the MOD-5 Neartip standard. To ensure the lowest possible price for MK-46 torpedoes at this production rate, the Navy proposes to combine its acquisition of new torpedoes and the modifications program for 1986, 1987 into a single three year multiyear procurement package. This plan will deliver a total of 1500 new Neartip torpedoes and 1663 conversions, resulting in a much needed improvement in our inventory position at an economical price. We estimate the proposed multiyear procurement will result in a savings of over $51.4 million compared to three annual buys of the same size. Of equal importance, this level of procurement will ensure the maintenance of the lighweight torpedo industrial base as we transition to production of the MK-50.

Two of our sustainability programs capitalize on conversion of older torpedoes to new functions. The MK-67 Submarine Launched Mobile Mine (SLMM) is based on the MK-37 torpedo which was superceded by the MK-48 as our major submarine weapon. In its new role, it is a potent force multiplier which will be used to close enemy harbors and chokepoints. As you can see in Figure 8, we intend to procure this system at a steady rate in fiscal years 1986 and 1987. The MK-37 is also used for the Swimmer Weapon System. This is a unique program which allows Navy Special Warfare Forces to carry out coastal and harbor attack missions from a standoff distance.

Although not in this year's budget request, funding for two critical new weapons will be requested in fiscal year 1987. These are the MK-50 Torpedo and the *V*ertical *L*aunched *A*sroc (VLA). As previously discussed, the MK-50 torpedo will be our primary lightweight ASW torpedo in the 1990's, capable against all known submarines. The VLA will provide standoff ASW weapon capability for our newer surface combatants, the CG-47, DDG-51 and DD-963 classes equipped with Vertical Launching Systems. Carrying the MK-46 or MK-50 as a payload, VLA will offer significant increases in range and effectiveness over the earlier ASROC system which is launched from eight cell box launchers.

READINESS PROCUREMENT

Readiness funding ensures the ability of the Navy's operating forces, weapons systems and other equipment to perform their designed functions. Within WPN, readiness funding pays for targets used in fleet training, rework of weapons used in training and support costs for training ranges, and spares.

Figure 9 displays procurement plans for targets. Realistic peacetime training is the sine que non of successful anti-air and antisubmarine warfare in an actual conflict. The WPN appropriation procures air and underwater targets which simulate threats for tracking and actual weapons firing. Some have extremely sophisticated capabilities. For example, the Mobile Target MK-30 used on instrumented underwater ranges can simulate complex submarine maneuvers at speeds up to 30 knots. Similarly, the AOM-37C highspeed supersonic target can replicate a variety of aircraft and missile profiles to exercise combat systems and crews of both ships and aircraft. At the other end of the spectrum are relatively inexpensive, expendable targets such as the Mini Mobile Target MK-38, an underwater target used in the open ocean to provide valuable sonar tracking and weapons firing experience to fleet antisubmarine crews. Overall, the $129.7 million we are requesting for all types of targets represents an early and visible return on investment.

FIGURE 9

READINESS PROCUREMENT: AERIAL AND ASW TARGETS

	FY 1985		FY 1986		FY 1987		
TARGET	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
AERIAL TARGETS	-	60.5	-	105.6	-	105.4	Procures powered, remote controlled targets and towed targets for aircraft and ship training. Also used in RDT&E.
MK-38 MMT	1200	$ 2.5	1200	$ 3.5	-	-	Mini Mobile Target Expendable ASW target for open ocean training of surface ships. Multiyear procurement FY 1984 through FY 1986.
MK-39 EMATT	-	-	-	-	2584	$15.5	Expendable Mobile ASW Training Target. Improved open ocean target, capable of providing training to both surface ships and aircraft.
MK-30 Mobile Target	6	$21.3	6	$20.6	-	-	Reusable, sophisticated target. Used for training and testing on instrumented ASW ranges.

Readiness procurement associated with missile testing, rework and ASW training is displayed in Figure 10.

Although Trident I and Poseidon missiles are no longer being procured, funding is required to support missile readiness flight tests necessary throughout the operational lives of the weapons. The 1986 budget request will also procure Department of Defense components supplied to the Department of Energy for warhead assembly. The Trident I request of $66.2 million includes production support in the amount of $27.8 million which is associated with assembly and checkout of the final Trident I missiles appropriated in fiscal year 1984.

FIGURE 10

READINESS PROCUREMENT: MISSILE AND FLEET TRAINING SUPPORT

PROGRAM	FY 1985	FY 1986	FY 1987	NOTES
TRIDENT I	141.1	66.2	46.8	Funding supports procurement of reentry body components, test instrumentation for flight testing of missiles and production support.
POSEIDON	5.5	5.0	4.7	Flight testing support, warhead components.
OTHER MISSILE SUPPORT	6.7	12.3	22.9	Funds maintenance, support, test equipment for SUBROC ASW missile and missile launch-transportation canisters associated with Vertical Launch System.
TORPEDO SUPPORT EQUIPMENT	46.5	47.4	42.1	Maintains warshot inventories in operational status. Funds components required to rework torpedoes after exercise firings.
ASW RANGE SUPPORT	24.8	23.2	22.0	Provides for support and maintenance of Navy's underwater ASW tracking ranges used for training and testing. Procures necessary equipment, production support services, and range proofing for new equipment.
ASROC	25.9	15.6	18.1	Replacement components for ASROC missiles used in tests, training.

Also shown in Figure 10 is the Navy's request for ASW readiness support funding. Antisubmarine weapons used in training are generally recovered, as contrasted to missiles, which are expended in the course of firing exercises. The Torpedo Support Equipment funding line procures components and supplies necessary to rework MK-46 and MK-48 torpedoes subsequent to training and test firings. Similarly, the ASROC funding line replaces ASROC components lost in excercises. The amount of funding required in both lines is directly related to fleet training requirements. ASW Range Support funding provides training range devices and weapon proofing equipment used to support operations at the Navy's eight underwater ranges. A majority of the range support funding supports training exercises, with the balance dedicated to acceptance proofing of new and reworked weapons and test projects related to service weapons.

Spare procurement is a vital element of weapons readiness. WPN spares and repairs parts are in two categories. Initial and Replenishment spares are procured in support of operating forces and industrial activities which repair weapons. The quantities of initial spares required is determined in proportion to the number of end items such as torpedoes and guns which are procured. Funding for replenishment spares is based on the number of weapon overhauls required and the historical failure rate of weapon components. The Navy's request for spares funding is $166.6 million in fiscal year 1986 and $286.4 million in fiscal year 1987.

WARFIGHTING IMPROVEMENT

Figure 11 shows the WPN line items related to warfighting improvements for gun and mine systems. Satellite programs, missile modifications and industrial facility funding is shown in Figure 12.

FIGURE 11

WARFIGHTING IMPROVEMENT: GUN SYSTEMS, SMALL ARMS, MODIFICATION PROGRAMS

	FY 1985		FY 1986		FY 1987		
SYSTEM	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	NOTES
MK-15 CIWS	49	$169.4	39	$150.2	32	$132.9	PHALANX Close In Weapon System. Fast reaction, autonomous, 20MM gun system for terminal defense against cruise missiles and aircraft.
MK-15 CIWS Modifications	-	$ 30.3	-	$ 37.1	-	$ 56.3	BLOCK I modifications increase magazine capability and search evaluation angle to counter new threats. Other modifications enhance operability, maintainability and reliability.
MK-75/76MM Gun Mount	3	$ 10.9	6	$ 20.0	5	$ 17.9	Procures guns for modernization of Coast Guard cutters and maintenance pool for Navy/Coast Guard ships.
MK-19/40MM	58	$ 1.2	56	$ 1.2	25	$ .7	Machine gun which fires 40MM grenades. For use by patrol boats, SPECWAR units, construction battalions.
25 MM Gun Mount	17	$ 3.1	29	$ 5.5	22	$ 4.3	Army 25MM Bushmaster cannon on MK-88 Naval Mount. Replacement for 20MM gun on patrol boats, amphibious and auxiliary ships.
Gun MODS	-	$ 10.5	-	$21.0	-	$23.4	Operability, reliability, safety modifications for 16 incn/50 CAL. 5 in/54 CAL, 40MM, 25MM guns.
Small Arms	-	$ 3.5	-	$11.3	-	$12.5	Procurement and modernization of weapons 50 CAL and below.
CAPTOR MODS	-	$ 5.7	-	$15.7	-	$15.4	Conversion of MOD 0 versions to improved capability MOD 1. Reliability upgrade for all HCDS.

This is the ninth year that Phalanx CIWS has been procured through the WPN account. The Navy plans to install a total of 672 systems aboard ship, of which 389 will be procured with WPN funds. Our CIWS testing program, one of the most rigorous ever conducted by the Navy, has consistently demonstrated that Phalanx is a potent, reliable system for terminal defense against low-flying anti-ship missiles or aircraft that penetrate fleet area defense. All Phalanx systems procured with fiscal year 1986 will be Block I configuration. Previous production versions were Block 0 model. Block I improvements include increased search elevation capability and expanded on-mount magazine capacity. The CIWS modification program currently performs two functions. Of the $37.1 million requested in fiscal year 1986, $24.4 million will buy kits to backfit Block 0 systems to the Block I standard. The remaining $12.7 million is for alterations to enhance the reliability and maintainability of CIWS systems.

As a result of the increased air threat throughout the Middle East, the Navy has ensured that every ship scheduled to mount CIWS is so equipped prior to sailing for that region. In 1984–85, the Phalanx production program was realigned to provide earlier deliveries to the fleet. Additionally, systems earmarked for non-deploying ships have been diverted to near-term deployers. As a result, 16 ships received accelerated installation of Phalanx in 1984. By the end of 1985, a total of 21 deploying ships will have received CIWS earlier than originally programmed.

The MK-75 76MM gun mount is installed on new construction Navy FFG-7 class guided missile frigates, patrol combatant hydrofoils (PHM) and Coast Guard *Bear* Class cutters. It is currently being installed on Coast Guard *Hamilton* class cutters as part of their mid-life modernization. In fiscal year 1986, four of the six gun mounts requested are for this purpose. The remaining two mounts will form part of a rotatable maintenance pool to support all ships armed with the MK-75. The maintenance concept for these ships is based on the periodic replacement of the gun mount on a six year cycle. The gun mount is then renovated at a shore facility and in its turn replaces another shipboard mount. This strategy is essential because the ships classes involved are maintained through short industrial availabilities which do not allow time for onboard overhaul of the gun.

Short range, high volume firepower is important to a variety of Navy ships, patrol craft, and shore units. The MK-19 MOD 3 40MM machine gun and the 25MM gun described in Figure 11 satisfy this requirement. The MK-19 MOD 3 fires 40MM grenades to a maximum range of 2400 yards. It is an exceptionally effective close range defensive weapon for auxiliary and amphibious ships patrol craft, and construction battalions. The 25MM gun system will replace obsolete 20MM MK-16 guns as the main battery for 65 foot patrol boats and as general purpose short range armament for new construction amphibious and auxiliary ships. Both weapons are obtained through multiservice procurement programs.

The WPN request for Small Arms, although small in comparison to funding for other programs, has a critical priority. In his Fiscal Year 1986 Posture Statement, the Chief of Naval Operations used the term "violent peace" to categorize the current world political climate. Terrorism is a continuing fact of life, and terrorist acts have the potential for placing U.S. citizens at hazard anywhere in the world. In consequence, the Navy has an expanding requirement to provide security for naval units, ships and installations at home and abroad. Similarly, the Navy's unconventional warfare units, such as Seal Teams and Special Boat Units, have a range of capabilities often essential to antiterrorist actions and rapidly developing contingency operations in support of U.S. interests. The Navy, in coordination with the other services, has initiated programs to increase security capabilities and rapidly expand its special warfare forces. This expansion program accounts for the major increase in WPN Small Arms and Weapons funding between 1985 and 1986 which is shown in Figure 11. The additional $7.8 million will procure a variety of machine guns, mortars, rifles, shotguns and other weapons essential to base and ship protection. Fiscal year 1986 funds will also equip a new Seal Team and provide modern weapons to existing Special Warfare Units. Additionally, the Small Arms line contains weapons for a planned new Mobile Construction Battalion, an additional Naval Beach Group, and funding for procurement of the 9MM Personal Defense Weapon.

The Gun Modification program funds several types of actions. The Ordnance Alteration Program provides hardware to correct safety deficiencies, improve operability, reliability, maintainability, and system availability of all gun systems. The alterations are developed in direct response to reports from the fleet. In fiscal year 1986, $15.1 million of the requested funding is for this purpose. A major segment of the alteration program, $5.0 million in fiscal year 1986, procures hardware kits to install the ammunition load selection capability in Lightweight MK 45 five inch/54 caliber guns on Spruance (DD-963) and Kidd (DDG-933) class destroyers. This very important modification will provide the capability to select instantaneously a specific type of ammunition from the loader drum. It is an essential part of the conversion to enable these ships to use *S*emi-*A*ctive *L*aser-*G*uided *P*rojectile (SAL-GP) ammunition.

Although procurement of new Captor mines ended in fiscal year 1985, funding for Captor modifications is an important part of the WPN warfighting improvement program. Two types of modifications are contained in the request. First, a continuing program converts baseline Mod 0 Captors to the new Mod 1 configuration, which features improved detection capabilities. In fiscal year 1986, the Navy request is for 128 kits at a cost of $12.7 million. The second category of Captor modifications replaces electronic and electrical components to improve reliability. Cost for this program in fiscal year 1986 is $3.0 million.

A very important part of the funding which improves our warfighting capability is associated with space systems. As can be seen in Figure 12, WPN procures and supports three categories of satellites. The Astronautics program provides the net of navigation satellites used by our submarines and many surface ships. Fiscal year 1986 funding of $12.6 million provides for the launch of two satellites and for support funding. This year the Fleet Satellite communications program will launch one satellite. Fiscal year 1986 marks the beginning of Navy funding for the Defense Meteorological Satellite Program (DMSP), a joint service program with the Air Force serving as Executive Agent. The objective of DMSP is to provide orbital sensors for the measurement of atmospheric and oceanographic parameters. Navy procurement is for the Special Sensor Microwave Imager (SSM/I), a component of the satellite which will provide a new capability to monitor rain rate and soil moisture and an improved capability to measure atmospheric water vapor and polar ice parameters.

FIGURE 12

WARFIGHTING IMPROVEMENT: SATELLITES, MISSILE MODIFICATIONS, INDUSTRIAL FACILITIES

PROGRAM	FY 1985	FY 1986	FY 1987	NOTES
ASTRONAUTICS	14.6	12.6	15.1	Supports Satellite Navigation (SATNAV) system. WPN funding procures satellites, launch vehicles, sustaining costs.
Fleet Satellite Communications	51.4	56.3	108.3	FY 1986 funds launch and NASA support of one satellite.
Defense Meteorlogical Satellite	-	8.8	9.9	Funds Navy's share of components for DOD weather satellites system. Cooperative program with USAF.
Missile MODS	48.8	89.9	57.4	Procures components to upgrade performance of models and incorperate safety, maintainability, reliability improvements.
Weapons Industrial Facilities	31.4	23.4	16.8	Capital rehabilitation and emergency repair of equipment, civil works, buildings at Navy owned Naval Industrial Reserve Ordnance Plants (NIROPs).

The missile modifications funding request shown in Figure 12 aggregates the programs for Poseidon, Tomahawk, Harpoon, Phoenix, Sparrow, Standard and Sidewinder. Missile modifications include a number of essential actions to improve our warfighting capabilities. All missiles receive performance, reliability, maintainability and safety alterations based on testing results and fleet feedback. Some modification programs lead to major increases in operational capability. For example, the Sidewinder modifications include actions to upgrade earlier AIM-7H/L models to the AIM-7M standard. Quite simply the modification request is an essential expense to ensure that our missile inventory, which represents a major long term investment in warfighting sustainability, is properly configured to meet operational requirements.

SUMMARY

We believe the Navy's fiscal year 1986 WPN request is balanced, affordable and properly constructed to meet the needs of the Navy and the nation.

Our overriding emphasis is this year's WPN request is ordnance sustainability to ensure that we attain our strategic and tactical weapons inventory goals as rapidly as possible consistent with overall fiscal realities. We have funded the readiness account—Trident I, aerial and ASW targets, range support, spares and so forth—at a level which will provide the fleet with the training and material availability essential to tactical proficiency. Warfighting improvement funding, the smallest sector within WPN is selectively targeted at our most pressing requirements—close-in air defense, anti-terrorist security, and an expanded special warfare capability.

It is no exaggeration to say that ordnance and support material procured by the WPN appropriation provides the key to the fleet's ability to carry out sustained combat operations at sea in support of the national interest. Your support of this year's budget will continue the steady progress toward full readiness and sustainability which has marked the preceding years of this decade.

STATEMENT OF VICE ADM. NILS R. THUNMAN, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS, SUBMARINE WARFARE

Admiral THUNMAN. Good morning, Mr. Chairman. It is an honor to have the opportunity to discuss our submarine program with you for the fourth consecutive year. I will submit my statement for the record and summarize the important points.

First, the Trident Program is the Navy's highest priority program, and as our CNO has called it, it is the cornerstone of our national security policy.

The Trident submarine deliveries have been ahead of schedule. Five ships are at sea performing superbly, and between them they have conducted 18 strategic deterrent patrols. The operating and refit cycle works extremely well. That cycle, as you may know, involves a patrol of 70 days followed by 25 days in port for refit and maintenance. This cycle, which is supported by the submarine base at Bangor, permits these ships to operate at sea about 66 percent of the time over their life time.

We are requesting the authorization of one Trident in 1986. The ship that we are asking for will be capable of launching the Trident II, or the D-5 missile. The development of that missile is on schedule, the costs are under budget, and we expect to conduct the first flight of that missile from a launch pad in 1987 with initial operating capability in 1989.

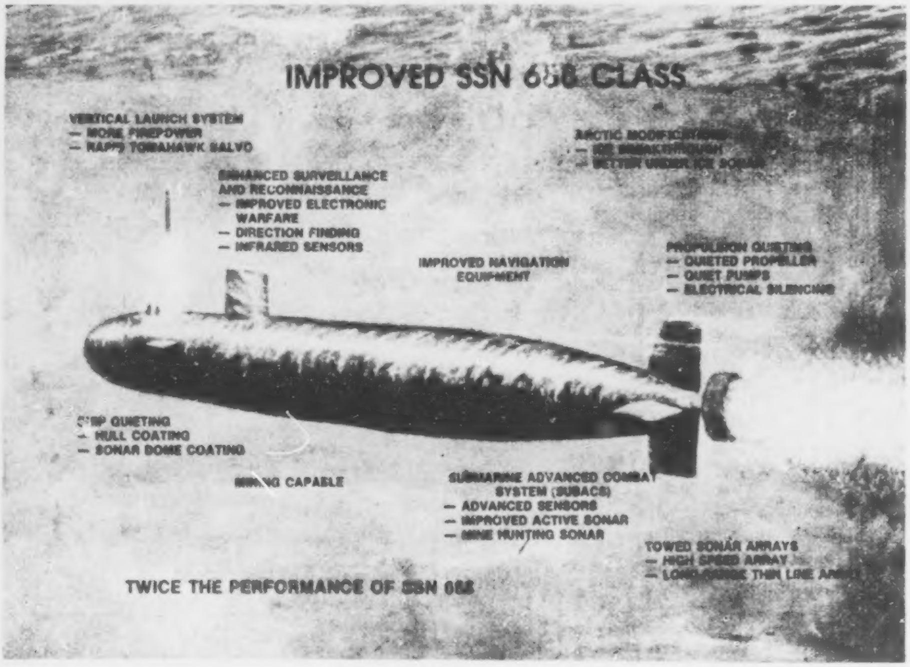
King's Bay will be the home port for the first of our D-5 capable submarines. The development of that base is on schedule with an initial operating capability of 1989. The schedule is tight. There is no margin for delay.

Turning to our attack submarine program; as you know, the building program is based on our maritime strategy and the Soviet threat. The maritime strategy calls for the majority of our nuclear attack submarines or SSNs, as we call them, to go forward immediately at the beginning of any hostilities with the Soviets to sink his fleet, bottle up his massive submarine force, and now with the advent of the Tomahawk cruise missile, to attack his land bases. Other SSNs will be in support of our carrier battle groups as they conduct their offensive operations worldwide.

The Soviets have a massive submarine building program. I estimate some 35 to 40 submarines are being built in the Soviet Union at this time. They are launching about 9 or 10 per year. Last year we discussed several new designs, most notably the Sierra and the Mike—these are big and capable ships—in order to do the things in areas such as quieting that are necessary to operate in today's combat environment.

This year we have seen the launch of a new submarine the Akula class. This is another big ship, big for more fire power, big for improved quieting.

I could go on at length about the threat. I know you have been briefed by Admiral Butts, so instead I will move to what we are doing to enable us to carry out our maritime strategy.


IMPROVED SSN 688 CLASS
VERTICAL LAUNCH SYSTEM
— MORE FIREPOWER
— RAPID TOMAHAWK SALVO
ENHANCED SURVEILLANCE AND RECONNAISSANCE
— IMPROVED ELECTRONIC WARFARE
— DIRECTION FINDING
— INFRARED SENSORS
ARCTIC MODIFICATIONS
— ICE BREAKTHROUGH
— BETTER UNDER ICE SONAR
IMPROVED NAVIGATION EQUIPMENT
PROPULSION QUIETING
— QUIETED PROPELLER
— QUIET PUMPS
— ELECTRICAL SILENCING
SHIP QUIETING
— HULL COATING
— SONAR DOME COATING
MINING CAPABLE
SUBMARINE ADVANCED COMBAT SYSTEM (SUBACS)
— ADVANCED SENSORS
— IMPROVED ACTIVE SONAR
— MINE HUNTING SONAR
TOWED SONAR ARRAYS
— HIGH SPEED ARRAY
— LONG-RANGE THIN LINE ARRAY
TWICE THE PERFORMANCE OF SSN 688

We are requesting four of the improved 688 class submarines for authorization in 1986. This is the same number authorized last year. We urgently need these ships to carry out our maritime strategy in the face of the Soviet numerical advantage, which as you know is about 3 to 1 and to counter the improvements that we are seeing in their submarine force.

The ships we are requesting are the improved 688s. They are twice as capable as today's 688, and they will significantly enrich the quality of our force.

This slide shows some of the improvement: a vertical launch system for more fire power, significantly enhanced electronic warfare capability for surveillance, improved navigation, a full Arctic capability—as you may recall, before the 1983 authorizations, our 688s were not capable of surfacing through the ice—major improvements in quieting to the propulsion plant as well as overall ship quieting, and the submarine advanced combat system, or SUBACS. with its improved sonar arrays, and significantly increased operability. Finally, the ship will have a full mining capability along with the capability to conduct other special operations. These submarines will be the best in the world when they enter the fleet. And they are vital if we are going to be able to carry out the mission called for in our maritime strategy in the future.

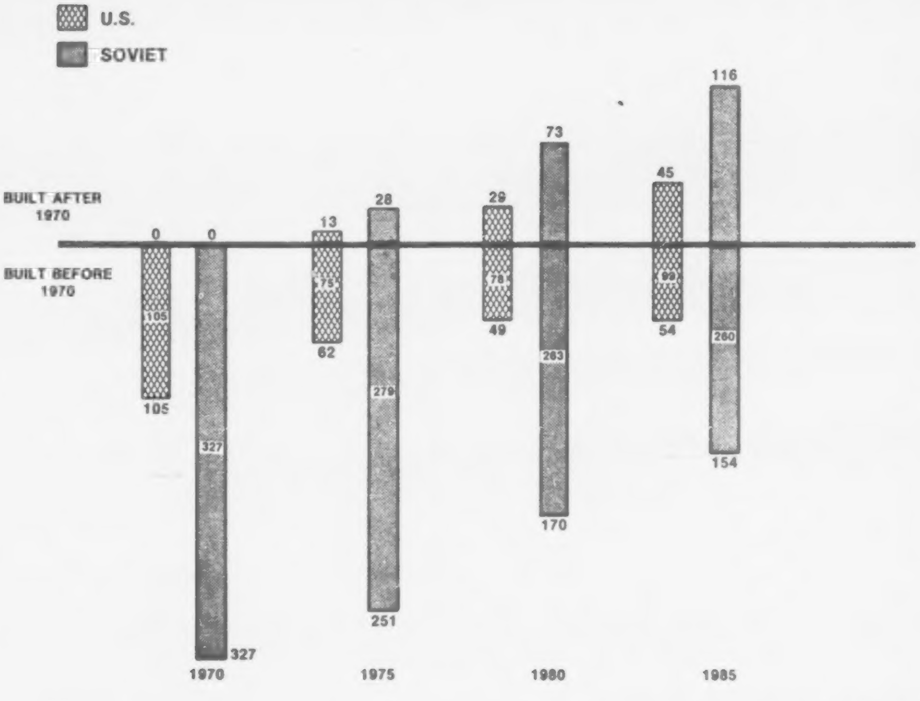
We are also designing and developing a new design attack submarine, the SSN-21, which is designed to carry out our submarine mission in the year 2000 and beyond.

There is simply insufficient space and weight in the 688 to achieve the quieting and combat systems gains necessary in order for us to prevail against the future threat. I believe this submarine is vital if we are going to maintain our undersea supremacy.

Last year when I briefed you we had just completed the conceptual design of the submarine. We have subsequently completed the preliminary design, and expect to enter contract design this June. We are within cost and on schedule for a planned authorization in the year 1989 for SSN-21.

Our design objectives have been met, and we have developed the finest submarine achievable. It will be the quietest, deepest diving, the fastest, most heavily armed, the most combat-capable submarine we have ever built, and we urgently need it if we are going to be able to carry out our mission in the late nineties and beyond.

U.S. AND SOVIET ATTACK SUBMARINE FORCE MODERNIZATION



In closing, I would like to compare the modernization of their attack submarine force with ours, theirs being the Soviets' of course. This slide shows the modernization of our attack submarine forces since 1970; 1970 is the baseline, and the bar graphs above the baseline represent the submarines built since 1970.

As you can see at the baseline they had some 327 as compared to our 105. The bar graphs above the line show submarines built since then. And they have had a significant modernization of their force.

Today, of the 260 submarines in their force, 116 have been built since 1970 as compared to 45 in our submarine force.

I believe this trend will continue, and if we are going to be able to carry out our maritime strategy in the future, we need to continue the modernization of our force, and I strongly urge your support of our improved 688 program in 1986 as well as the development of the SSN-21 for the future.

That completes my presentation.

[The prepared statement of Admiral Thunman follows:]

Prepared Statement of Vice Adm. N.R. Thunman, U.S. Navy, Deputy Chief of Naval Operations for Submarine Warfare

INTRODUCTION

The U.S. Submarine Force plays a vital role in our maritime strategy.

Our strategic missile submarines make up a solid leg of the strategic triad, and they are, because of their inherent security and survivability, becoming even more important in the strategic equation.

Our attack submarines are uniquely capable of operating with great effect in the forward-most ocean areas of our national interest.

It is extremely important, therefore, that we equip our ships and train our people to capitalize on the unique characteristics of the modern nuclear submarine. This is precisely the orientation of the Navy's submarine program.

STRATEGIC SUBMARINE PROGRAM

Our strategic submarine force today is an essential cornerstone of our national security policy—it provides the country with a credible and secure retaliatory force in direct support of our top security objective, the deterrence of war. Over the last 24 years, our SSBNs have completed over 2,300 strategic deterrent patrols and have established an enduring record of excellence, readiness, reliability, and professionalism. The force is being modernized and made more capable with the introduction of new Trident submarines, and the Trident II (D-5) missile now in development will ensure we have a convincing and stable deterrent force well into the next century.

Strategic submarines are the most survivable leg of the strategic triad, and it is this quality that makes them such valuable national assets. Because there have been several news articles over the last year with claims of "transparent oceans," today I will highlight our program that ensures SSBN survivability is much more than a claim, it is a fact of life.

The SSBN security program, with the best scientific support available in the country, is dedicated to keeping our SSBNs survivable by anticipating possible threats and developing appropriate responses. It continually studies technologies that could conceivably be relevant to the future survivability of the SSBN force. This is a dynamic and continuing process as technology changes, and we maintain a healthy skepticism as we vigilantly search for new ideas of potential scientific breakthroughs. Detailed assessments are conducted using rigorous scientific data, experiments, mathematical models, real world tests, and all-source intelligence. If a potential threat is identified, appropriate countermeasures, operational procedure changes or tactics are used to negate that threat.

The result of this program's efforts to date is factual and authoritative assurance that there is no foreseeable technological capability by which the Soviets could significantly diminish the strategic effectiveness of the U.S. SSBN Force. This is not a static situation, however, and this vital effort must continue to resolve uncertainties as technology develops. The SSBN security program deserves your strongest support; it is one of the most important elements within Navy research and development. A detailed report on the survivability of the Strategic Submarine Force is being prepared for submission to the Congress in accordance with title XI of last year's Defense authorization bill.

The Trident submarine program is running smoothly, with new ships continuing to be delivered ahead of schedule. Five of these magnificent ships are now operating in the fleet: Four are conducting patrols from their base at Bangor, Washington, and they will be joined by the fifth Trident, USS *Henry M. Jackson*, this summer. The last four Tridents have been delivered an average of six weeks ahead of the contract delivery date as established in August 1981, and this trend will continue with the sixth ship, USS *Alabama*, expected to be delivered this spring well ahead of schedule.

The Trident submarines are the most effective warships of their kind in the world today—quieter, faster, and with more firepower than the aging SSBNs they replace. With eighteen deterrent patrols completed to date by the Trident ships, their performance has been truly superb. The FY 1986 budget requests authorization for the thirteenth and advance procurement for the fourteenth and fifteenth ships. Our plans call for the procurement of one Trident per year which will support an all Trident force of about twenty ships by the end of the century. The ultimate number of Tridents to be built is not yet determined.

The bulk of our SSBN force today consists of thirty-one Poseidon submarines, all built in a relatively short period of six years during the 1960s. These ships today average twenty years of age. Nineteen are equipped with the Poseidon (C-3) missile, with a range of about 2,500 nautical miles, and twelve are equipped with the Trident I (C-4) missile, with a range of about 4,000 nautical miles (the same missile carried on the Trident submarines). The longer range of the Trident missile significantly increases the patrol sea available to the submarines and allows target coverage soon after leaving U.S. ports.

We are requesting modest but essential funding in FY 1986 to modernize our strategic submarines. These modernization efforts include improved strategic communications to ensure connectivity with the national command authority under conditions of attack, and noise quieting modifications to maintain our acoustic advantage. The modernization program is a necessity, similar to our SSBN security program, if we are to continue to maintain the essential connectivity and survivability of our strategic submarines. I most strongly urge you to support these vital modernization steps.

The last Trident I (C-4) missiles planned to be procured were authorized in FY 1984, and our inventory objective for these missiles has been set to support the twelve Poseidon ships and eight Tridents equipped to carry it. Contrary to what you may have read in the news, the Trident I missile is highly reliable.

In fact, since August 1983 there has not been a single missile failure in more than twenty consecutive operational test flights. The in-flight reliability of the Trident I missile is firmly above the program goal, and we have good confidence in its performance. It will remain a credible deterrent weapon until it is retired in the late 1990s after nearly twenty years of service. The funds requested for the Trident I missile in FY 1986 will provide for on-going weapons system support and procurement of special purpose flight test instrumentation and reentry system components for use in the flight test program.

National strategic policy dictates the requirements for our deterrent weapons. Our current national policy requires that the U.S. have a credible, survivable retaliatory weapon capable of attacking all classes of targets to ensure the Soviet Union remains convinced it would be futile to initiate an attack against the United States or our allies. Accordingly, the President's strategic modernization plan calls for the development and deployment of the Trident II (D-5) weapon system by December 1989. We are now in the second year of full scale engineering development, and this program is proceeding well to meet the scheduled initial operational capability (IOC).

Eventually, all Trident submmarines will be configured to carry the Trident II missile. Beginning with the ninth Trident ship, all new construction ships will be equipped with the Trident II capability as they are built in the shipyard. The first eigth Tridents will receive the Trident II weapon system during their first overhaul beginning in the early 1990s. The possibility of accelerating the Trident II weapon system has been questioned periodically. It is not possible to accelerate the IOC of the Trident II missile; however, we could increase the Trident II deployment rate above what we presently plan by accelerating some backfits of Trident II into the first eight Trident submarines. Trident II deployment acceleration is not required at the present time, but the option is available should national requirements change in the future.

The significant improvements in the Trident II missile over previous submarine launched ballistic missiles are primarily improved accuracy and payload flexibility. This will allow the weapon to be targeted against all classes of targets, soft and hard, in accordance with national guidance. The Trident II missile will be capable of carrying the new MK 5 high yield warhead currently being developed, or the same MK 4 warhead as presently used on the Trident I missile. This dual warhead capability and the system's accuracy will give the sea-based leg of the triad the flexibility required by our national policy.

The increased size of the Trident II missile will maximize its range for a given payload. with the full capacity of high yield weapons, Trident II will have a range comparable to the Trident I missile and will allow continued expansion of available SSBN patrol area as these ships replace Poseidon C-3 equipped submarines. In addition, with a full payload of the lower yield warheads, Trident II will have a substantial increase in range over Trident I. This improved range/payload capability is important to allow options for larger patrol areas in the future.

In the FY 1986 budget, we are requesting Trident II research and development funds to continue full scale engineering development. Our first land-launched flight tests are scheduled to begin in early 1987. In addition, we are requesting Trident II weapons procurement funds needed for production planning and activation of the strategic weapons facility at Kings Bay, Georgia, tooling and test equipment at contractors' facilities, and long lead time advance procurement of reentry system components. These funds are essential to maintain the demanding schedule leading to initial production of tactical missiles in FY 1987 and a 1989 weapon system IOC.

Today, our strategic submarines are based in Holy Loch, Scotland; Charleston, South Carolina; Kings Bay, Georgia; and Bangor, Washington. As we evolve to a totally Trident force near the end of the century, we will gradually phase out of the strategic operations at Holy Loch and Charleston, with all Trident submarines operating from U.S. bases at Kings Bay and Bangor. The strategic submarine logistical systems are designed to maximize the periods these submarines spend at sea. After more than 24 years of operatings SSBNs, the importance fo the logistical support system is increasing with the extended overhaul cycles and shorter refit times planned for our new submarines.

The submarine base at Bangor has been doing a fine job of refitting the operational Trident submarines within the shorter 25 day refits compared to 30 days for Poseidon submarine refits. The logistical support system allows the Trident class ships to spend approximately 66 percent of their life cycle at sea on patrol, compared to about 55 percent for Poseidon ships. Bangor also provides training and weapon system support to the ships, as well as housing and support to our families.

Kings Bay, Georgia, already the home of a Poseidon submarine squadron, will be the home of the first Trident II capable Trident submarines. The Trident facilities being built there are modeled on the successful designs and lessons learned at the Bangor base. We are requesting funds in FY 1986 for continued construction of the Trident facilities necessary to support the submarines, weapon system, and crews. The peak years in the building program for Kings Bay are FY 1985 through 1987. It is important to realize that the Trident II system cannot deploy on schedule if this base and supporting facilities are not ready. The schedule is tight, and there is little margin for delays. The funding requested for military construction and outfitting of the Trident facilities is absolutely necessary to enable us to meet the Presidentially-directed system IOC.

ATTACK SUBMARINE PROGRAM

The value of the multi-mission nuclear-powered attack submarine as uniquely capable instrument for executing the U.S. maritime strategy in time of conflict is clearly understood. Furthermore, the momentum which the attack submarine program has gained over the last four years with the strong support of the administration and Congress has yielded a quality attack submarine force, well equipped to be employed singly or in concert with other forces to deter Soviet maritime adventurism.

It is quite evident, however, that the Soviet Union has committed their technical and material resources to modernize and refine the capability of their massive submarine force. Attack submarines comprise almost 50 percent of the 600 plus combatant ships in the Soviet Navy. Attack submarines comprise fully 80 percent of Soviet submarine new construction efforts enabling them to add eight to ten new attack submarines annually. We estimate that the Soviet Union has over 35 submarines in various stages of construction. Their parallel development programs of new attack submarines and massive construction efforts have vividly defined the Soviet determination to wrest undersea superiority from the United States. By the 1990s, these new generation, quieter, more capable submarines will form the backbone of the Soviet submarine fleet.

I would like to dwell for a moment on the state of our attack submarine force today as we seek to counter the massive Soviet efforts. Last year, Congress approved the construction of four improved 688 class submarines, the largest number of attack submarines authorized in a single year in over a decade. These ships will be magnificent submarines, fully twice as capable in warfighting qualities as the *Los*

Angeles class submarines in the fleet today. Our program to modernize the *Los Angeles* class is totally embodied in the four ships which were authorized last year and the four ships requested in the President's budget this year. The improvements that we will build into the submarines represent the most extensive modernization plan ever accommodated within new construction submarines of an existing class. These modernization efforts are not simply incremental improvements to existing capabilities. These improvements double the combat effectiveness of these ships by drawing heavily on the research and development programs focused on the new design attack submarine, the SSN-21 class. The improved 688 class will be much quieter than today's 688 with the addition of new propulsors of advanced design, extensive machinery quieting developments, special hull coatings and coatings to enhance sonar capabilities, as well as quieter, more efficient reactor plant equipment. Additionally, we are improving the ability of these submarines to detect and engage hostile forces at sea and ashore with the installation of the submarine advanced combat system (SUBACS), which includes new active and passive sonar systems, as well as highly effective electronic surveillance and navigation systems. Finally, we have added entirely new mission capabilities in the improved 688 class. The Tomahawk vertical launch system not only increases the firepower of these ships by about 50 percent, but provides flexible strike options never before possible. These ships will also be constructed with a full mining capability and with the necessary modifications to permit operations in the stressful Arctic theater. By maintaining the momentum generated by last year's congressional approval for four improved 688 class submarines in FY 85 and with the approval of the four sister ships in this year's budget, we will ensure that the submarine force is enriched with ships whose capabilities assure our tactical advantage is maintained over Soviet submarines being built today. I request your strong and continued support for this vital program.

In addition to the improved 688 class construction program, we are incorporating essential improvements into the earlier 688 class and the 637 or *Sturgeon* class. These tactical and silencing upgrades which extend the combat capability of these ships are essential to address the improving quality of the threat. This modernization program is a tightly knit plan which takes advantage of space saved by some improvements such as installation of the very accurate and reliable electrically suspended gyro navigation (ESGN) system to accommodate additional space requirements for other required modifications. I solicit your strong support for these modernization efforts designed to maintain the effectiveness of the submarines which comprise the majority of our fleet today and which will remain as the mainstay of the submarine force until the turn of the century.

Last year, I described the new attack class submarine, the SSN-21, in terms of required characteristics necessary to address the Soviet threat of the year 2000 and beyond. These characteristics were developed through exhaustive studies of Soviet efforts in submarine development and by carefully reviewing all of our research and development programs which could be focused to support a 1989 SSN-21 authorization. This year has been dedicated to translating those characteristics, which were described in conceptual design, to specific characteristics which will form the basis for the contract design which is scheduled to be awarded later this year. This process has been an iterative one during which we have learned a great deal and made constructive choices to increase the warfighting capability of the ship, reduce the technical risk and achieve greater efficiencies in the construction phase. I am pleased to report that the required characteristics which defined the conceptual design remain unchanged after a searching, year-long technical review. Furthermore, the design has proven to be within cost limits and at a manageable level of technical risk to achieve a 1989 authorization.

The SSN-21 design emphasizes all of the critical attributes to counter the threat-quieting, mobility, endurance and firepower. These qualities are essential for executing the full range of missions required by our maritime strategy. The funds which we are requesting in the FY 1986 budget for SSN-21 will ensure that the research and development effort remains properly focused to bring SSN-21 into the fleet by 1995, affordably and with all the advanced submarine technology feasible.

While the design of SSN-21 is a dramatic example of the performance improvements achievable with proper direction and application of technology, we are continuing to probe the limits of submarine technology to explore fully every area of promise. The submarine research and development effort includes specific emphasis on advanced construction techniques, new hull materials, hull coatings, drag reduction techniques, and developmental sensor systems. Continuous review of the technology base and a searching examination of requirements for the long term determine the optimum balance for the research and development programs for which essential funding is requested in the FY 1986 budget.

Our attack submarine arsenal is equipped to provide our ships with the range of weapons to engage the most capable units of the Soviet fleet with deadly efficiency. Today's submarine launced weapons consist of the MK 48 torpedo, the rocket boosted SUBROC anti-submarine missile and the Harpoon and Tomahawk cruise missiles. These weapons are being upgraded or replaced by advanced systems now under development to keep pace with continued Soviet weapons improvements.

Four years ago, Congress approved a program to improve the reliability of our MK 48 torpedo. This program whose product is the MK 48 reliability enhanced baseline improved torpedo, or REBIT, will conclude at the end of March 1985 with the last MK 48 torpedo in inventory completing the upgrade process. I appreciate your support of this program and am pleased to report that our reliability testing has shown this program to be a real success. Since the REBIT program torpedoes began returning to the fleet, we have enjoyed a 100 percent success rate in almost 20 torpedo service weapons test firings.

As the Soviets continue to improve their submarines and surface ships, it is imperative that we produce a torpedo with the ability to destroy deep diving, high speed submarines and the most capable surface warships in all environments. We have developed that capability in the MK 48 advanced capability (ADCAP) torpedo. ADCAP has completed advanced development testing meeting all performance thresholds at this phase in the program. Notably, the ADCAP was tested this year in some of the most stressing environments, and it performed superbly. We will commence technical evaluation in April, and the ADCAP will achieve IOC in 1987.

The aging SUBROC is our only submarine launched anti-submarine weapon that can reach out beyond torpedo range. The follow-on to SUBROC is the ASW Standoff Weapon (ASW/SOW). This weapon is essential to give us the ability to sink enemy submarines outside the opponents detection range with either a nuclear or conventional warhead. This development merits your highest support. ASW/SOW will be available to the fleet before SUBROC is retired, providing continuity in the fleet of an effective long range ASW weapon.

The Harpoon and the Tomahawk cruise missiles provide our submarine force with a proper balance of long range weapons for engaging surface or land targets. The Tomahawk anti-ship and land attack (nuclear) cruise missiles have been introduced into the submarine force. These weapons expand the submarines' potential roles in wartime and are essential in numbers to provide the flexibility for submarines to respond to the varied tactical circumstances confronting them in war at sea.

While the capability of our weapons is assessed as adequate today, we need to increase the numbers in torpedo and missile inventories and proceed purposefully to improve and develop new submarine launched weapons for the future.

DEEP SUBMERGENCE PROGRAM

Our efforts in "inner space" are assuming even greater significance as a result of statements of policy on oceanography issued by the Secretary of the Navy and the Chief of Naval Operations during 1984. They have emphasized the need to reinvigorate Navy efforts in oceanography and closely related activities and directed that the Navy provide leadership in this very important area.

Within the deep submergence program are those assets with capability for deep ocean research, exploration, and ocean engineering tasks. Also included are those assets necessary for the conduct of submarine search and rescue as well as the conduct of biomedical research. The inventory includes manned untethered submersibles, deep submergence submarines such as NR-1 and *Dolphin*, unmanned search instruments and recovery platforms, air/mixed gas diving systems, and related support ships. With this small austere inventory, we have a limited capability to conduct manned and unmanned operations to a depth of 20,000 feet. From a depth limitation standpoint, only 2 percent of the world's ocean floor is inaccessible.

In addition to tasks directly related to our conquest of "inner space," the deep submergence program is tasked with the recovery of lost U.S. objects of intrinsic or strategic value from the sea floor. This is a major task and the tempo of supporting operations continues to increase as a result of the Navy's aggressive object recovery policy.

Internationally, the submarine search and rescue element of the program continues to increase in scope. Bilateral agreements with many of our allies for the contingency rescue of personnel have or are being negotiated, and we are fully committed to render assistance should the need arise.

As the emphasis on deep submergence continues to increase, it is necessary that support for this very important program remain strong. Many of our assets are in need of modernization and lack the dedicated assets necessary to respond quickly to emerging scientific or operational requirements. Accordingly, I ask your continued support for this austerely funded, but vital program for deep ocean search and exploration.

SUBMARINE PERSONNEL

Our submariners are doing a superb job. As with people throughout the Navy, they work hard and are asked to be separated from their families for long periods of time. The unique demands of submarine life do impose additional arduous requirements of isolation and stress, however, Against this backdrop let me highlight our personnel status. The personnel picture for the enlisted submariners is encouraging. Although we have missed enlisted accession goals for the past three years, our continued success in improving retention makes those we have recruited sufficient to meet today's needs. Our at-sea supervisory manning (top four grades) remained at or near 100 percent throughout FY 1984. Five years ago senior enlisted manning was at 72 percent of requirements. I was the Pacific Submarine Force Commander at that time and vividly remember being faced with hard decisions of limiting submarine operations rather than compromising any aspect of submarine safety due to inadequate manning. The dramatic turn-around was primarily the result of strong congressional legislation which provided proper compensation. Those measures have now gone four years without adjustment. Although not an issue this year, I believe we may see negative trends in submarine enlisted retention in the future if we do not routinely protect the incentive value of their entitlements which compensate for the heavy demands we place on them.

As far as nuclear submarine officer manning is concerned, the picture is not as bright. Accessions peaked in FY 1983 and have declined since then. While this is not an immediate problem, the trend is worrisome and is being watched very closely. Retention, which climbed rapidly to 46 percent in FY 1983, improved only slightly in FY 1984, and is projected to be 48 percent in FY 1985. This flattening of the curve and a sharp increase in resignations during the first third of this fiscal year could portend a down turn in retention, possibly as soon as next year. Overall, we now have the correct number of officers in the submarine community; however, we continue to experience shortages within the middle grade officer ranks (O-4 to O-6). Today we are facing a shortfall of 17 percent of these experienced nuclear qualified officers, and this shortfall will grow to 22 percent by 1990 unless action is taken this year to reverse this trend.

To ensure that properly trained and experienced officers are filling critical billets at sea in submarines, we have been forced to extend sea tours, assign back-to-back sea tours, gap some essential shore billets and limit opportunities to serve in billets outside the submarine force. Additionally, as a subset of this problem, there is a growing shortage of post command submarine officers—officers who are sorely needed to command our Trident submarines, submarine squadrons, submarine tenders and other very critical billets. Their expertise is vital in support assignments involving submarine force operation and safety, strategic planning, tactical development and program management. We simply cannot afford to ignore this problem of growing magnitude which impacts our readiness.

Our FY 1986 legislative priorities include initiatives designed to limit any exacerbation of our mid-grade officer shortage problems. The nuclear officer incentive pay package provides for increased bonus levels, better targeting, and improved management flexibility. Additionally, the submarine pay package calls for elimination of a decrease in submarine pay which now confronts our officers when they complete 18 years of service and then again when they are promoted to captain. I urge you to consider our proposals and act favorably to minimize the impact of personnel shortfalls.

SUMMARY

The national maritime strategy requires undersea superiority. We have it now, and the course we must set to retain this supremacy in the face of an aggressive Soviet challenge is clear. The strength of today's submarine force and the submarine programs which are in place will assure our future superiority in this critical arena of undersea warfare. I request your strong support for the programs I have outlined today.

STATEMENT OF VICE ADM. EDWARD H. MARTIN, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS, AIR WARFARE

Admiral **Martin**. Good morning, Mr. Chairman and distinguished members of the committee.

I, too, am appearing before your subcommittee for the first time, having arrived in Washington only this past week from command of the Sixth Fleet, so consequently I am used to looking at things in a little more operational nature.

I have prepared a statement which I respectfully request be submitted into the record.

Senator **Cohen**. It will be included, Admiral Martin.

Admiral **Martin**. Mr. Chairman and gentlemen, as commander of the Sixth Fleet, I was very concerned with the Soviet submarine threat. In the Sixth Fleet as well as on the waters of the world, the Soviet submarine threat is an increasing concern to all of us.

AIRCRAFT PROCUREMENT PROGRAM

Their program, as Admiral Thunman indicated, is advanced, it is aggressive, it is sophisticated, and they are building submarines at a rate three to four times our annual rate. In the last 3 years alone they produced and launched 21 new attack submarines.

This morning I am going to discuss the Navy's fiscal year 1986 aircraft procurement program as it relates to these specific areas of interest to this subcommittee: Antisubmarine warfare and mine countermeasures operations.

Again, looking from the point of view of a recent fleet commander, I feel it is incumbent upon all of us to ensure that we have the best means possible to counter the Soviet submarine threat, and the increasing mine inventory that we see in the world.

To counter the submarine threat, the Navy employs a complex mix of weapons platforms subsurface, surface, and airborne operating independently or in concert with each other in a zone antisubmarine warfare offense.

We consider three zones in our concept of ASW offense, an outer zone which encompasses broad ocean areas where adversary submarines operate, a middle zone closer to our operating forces, battle groups, or other core forces, and an inner zone which is in proximity to our carrier battle groups.

In all these zones, our airborne ASW platforms bring specific and complementary capabilities to the arena. The mobility, range and weapon suites of airborne platforms provide us with a capability to search for and localize enemy submarines and deliver lethal attacks before they can get within the missile or torpedo ranges of our forces.

To accomplish this, we employ a variety of fixed wing aircraft and helicopters flying from either shore stations, aircraft carriers, or escort ships. I will briefly discuss each.

P-3C ORION

- **Forward Area ASW, Surveillance, ASUW**
- **ASW, ASUW and SSSC Support of Battle Group or Merchant Shipping**
- **Total Program 317**

Long-range patrol capability and submarine prosecution is vested in the P-3C Orion. This capable and proven aircraft operates worldwide from our own and allied airfields. Its long range and extended on station time provide coverage of broad ocean areas, our outer ASW offense zone.

The P-3C Orion has been in production since 1969, and has enjoyed an evolutionary development of its sensor systems through the update program. The latest improvement is Update III, which adds the Proteus advanced signal processor, significantly improving the Orion's ability to detect, track, and attack quieter Soviet submarines.

The first Update III P-3C aircraft entered fleet service in May of this last year. Our fiscal year 1986 request is for nine P-3C aircraft, and this includes advanced procurement to begin multiyear procurement of the P-3C starting in fiscal year 1987.

The organic ASW capability of a carrier battle group resides in the S-3A Viking and the SH-3 Sea King helicopter. In addition, the light airborne multipurpose system or Lamps helicopters on our surface combatants similarly provide battle group ASW protection, and frequently they operate independently of the battle group.

The S-3 Viking provides an all weather day night capability to maintain a forwarded ASW screen to conduct local area search and to classify and attack both subsurface and surface targets in the middle and inner ASW offense zones.

The Viking can be armed with both torpedoes and depth bombs, and its very high cruise speed relatively speaking, allows rapid reaction to enemy submarines identified by any of a number of other sources.

The S-3A, however, is no longer in production, and therefore a modernization of the existing force is required, and our fiscal year 1986 request supports production of a major modernization effort for this aircraft. This effort was begun in fiscal year 1985.

This is the weapons system improvement program, commonly known as WSIP, and this will retrofit avionics and weapons subsystems to counter the submarine threat of the 1990's and into the year 2000. The resultant aircraft, which will be called the S-3B, will incorporate state of the art technology for increased radar detection and classification, advanced acoustic processing, increased electronic support measures capability, and it will also incorporate the Harpoon missile.

We will convert 160 of the S-3A aircraft to the S-3Bs.

There are two types of LAMPS helicopters presently employed on our surface combatants, the SH-2F LAMPS Mark I and the SH-60B Sea Hawk, LAMPS Mark III. The SH-2F carries both active and passive sonobuoys.

SH-2F (LAMPS MK I) SEASPRITE

- Air Sub-System of the LAMPS MK I Weapons System
- Deployed on FF, FFG, DD, CG
- Onboard Capability to Redetect, Classify and Attack Enemy Submarines with MK 46 Torpedoes

The SH-2F possesses a modest onboard acoustic data processing capability and a rudimentary data relay to the parent ship.

Senator COHEN. Admiral, if you had your choice between the Mark I and the LAMPS III, what would you pick?

Admiral MARTIN. Mr. Chairman, we need both of those helicopters because we have a number of ships on which the LAMPS Mark III will not fit—the FF-1052 class and the CG-26 class. We have a number of ships that the LAMPS Mark III cannot be accommodated upon, and therefore we are continuing the buy of the SH-2F.

Senator COHEN. I will come back to it. I have a serious question about that.

Admiral MARTIN. Yes, sir. We are requesting six SH-2Fs in fiscal year 1986, and one of the reasons that we are not proceeding totally with the SH-60 is, as I just described, in order to accommodate the ships that will not take the LAMPS Mark III.

Senator COHEN. Is this the last year you will request funding for the LAMPS Mark I?

Admiral MARTIN. This is the last year we are requesting funding for the LAMPS Mark I, yes.

Senator COHEN. This is the third year in a row we have said it is the last year.

Admiral MARTIN. Yes, sir; I am aware of that.

- **Air Sub-System of LAMPS MK III Weapon System**
- **Remote Platform for Deployment of Sonobouys and Torpedoes, Processing of Sensor Information and an Elevated Radar Platform and ESM**
- **Total Program 209**

The new SH-60B Sea Hawk, which we are very excited about, is the air subsystem of the total LAMPS Mark III system, and this is scheduled for the FFG-7 class, the DD-963 class, the DDG-993 class, and the CG-47 class ships.

The total Mark III system includes the helicopter—the SH-60B—the ship's electronics a helicopter landing system, and helicopter support facilities. So, the total package is very complex. The LAMPS Mark III is a computer integrated ship helicopter combat system which greatly increases the flexibility, combat range, and effectiveness of our surface combatants.

The SH-60B passes sonobuoy information through an advanced data link to the LAMPS Mark III ship for processing, and it also has full processing capability aboard the aircraft for over the horizon operations. Both LAMPS Mark I and Mark III can attack using homing torpedoes.

Senator COHEN. Admiral, you did not mention the DDG-51 in terms of accommodating LAMPS III.

Admiral METCALF. The DDG-51 will take the LAMPS. It does not have a hanger. We can fuel it. We can operate it from that ship.

But we do not have a hanger on the 51. I think that is what you are referring to, sir.

Senator COHEN. Yes, I will come back to that also. I did not know whether you had just slipped over the 51.

Admiral MARTIN. No, sir. I might add that the LAMPS Mark III is in its initial deployment. As I speak it is transiting west with the Constellation carrier battle group. The introduction has been very successful.

We are requesting funding for 18 SH-60Bs in fiscal 1986.

The principle asset for the inner zone of our ASW offense is the SH-3. This aircraft provides the capability to neutralize the submarine threat in the proximity of the carrier. The SH-3 incorporates a dipping sonar to penetrate the high noise levels of the inner zone in order to detect and attack submarines which might have slipped though the outer ASW screens.

SH-60F (CV ASW HELICOPTER)

- Replaces Aging SH-3H
- Inner-Zone Detection, Classification and Attack
- Highly Mobile, Dipping Sonar
- Total Program 175

Presently we are developing a variant of the LAMPS Mark III to replace the aging SH-3. This effort was completed, and on the SH-60F was selected. The contract for development was signed in just the last few days, and we have requested advanced procurement funds in fiscal year 1986 for seven SH-60Fs in fiscal 1987.

Each aircraft that I have described is designed to provide coverage of one or more zones on our defense against the submarine threat. None is more or less critical to ASW prosecution than another and none could be eliminated. Each requires our attention to ensure that our readiness and preparedness do not lag behind the improving capabilities of the Soviet submarines force.

Another warfare area in which we must continue to expand our capabilities and one which is of specific interest to this subcommittee is mine countermeasures or MCM. Soviet and Warsaw Pact nations have the world's largest stockpile of mines, and mines are becoming increasingly available to other less than friendly nations.

These mines may be used in a variety of ways to prevent or dealy the resupply of ground forces, to deter amphibious assaults, to block straits and narrow waterways, to hazard the fleet operating areas, and indeed to even close our own ports.

Our only existing airbone mine countermeasures platform is the RH-53. This aircraft was used with great effect in the Red Sea mine clearing operations last year. The MH-53E which is a derivative of the CH-53E, is specifically designed for the complex task of mine clearing, and will be far more capable.

C/MH-53E SUPER STALLION

- **USN/USMC Heavy Transport Helicopter (16 Ton Lift Capability)**
- **Amphibious/Heliborne Assault Movement of Cargo and Troops**
- **MCM**
- **MYP**

The MH-53 Echo enjoys significant growth potential to accommodate developing mine countermeasures technology. Its greatly increased tow capacity will enable it to tow the ALQ 166 magnetic minesweeping device. This is a modern and most capable, but very heavy, platform which exceeds the tow capacity of the present RH-53D.

Additionally, the MH-53E will provide a one-third increase in on-station time, and an all weather airborne mine countermeasures capability not currently available. It will be much more reliable and maintainable, and enjoys human engineering improvements which will enhance capability and safety.

Last year Congress approved multiyear procurement of the CH and the MH-53E airframe commencing in fiscal year 1986. This multiyear procurement will provide a savings of more than $100 million when compared to the annual procurement of this specific aircraft.

We are requesting funding in fiscal 1986 to procure 10 mine countermeasures variants and four CH-53 aircraft.

Mr. Chairman and gentleman, naval aviation intends to continue to emphasize a balanced, up-to-date program to meet the threats imposed by submarines and mines. With your continued support, I am confident we will be successful.

Thank you.

[The prepared statement of Admiral Martin follows:]

PREPARED STATEMENT OF VICE ADM. EDWARD H. MARTIN, DEPUTY CHIEF OF NAVAL OPERATIONS (AIR WARFARE)

Mr. Chairman and distinguished members of the committee, it is a privilege to appear before you today to outline the Navy's requirements for anti-submarine (ASW) and mine-countermeasures (MCM) aircraft as outlined in our FY 1986 budget request.

Naval aviation forces are key components of both ASW and MCM in the United States Navy. The technical capabilities, wide coverage and quick reaction time inherent in the variety of aircraft assigned to these missions are vital ingredients in our overall capabilities. Our programs to acquire new aircraft, and to modernize existing aircraft, are absolutely essential in order to keep pace with the technological advances being incorporated in the Soviet arsenal.

ANTI-SUBMARINE WARFARE

Naval aircraft, working in close coordination with subsurface and surface forces, form a zone offense for the prosecution of hostile submarines. This concept describes the underwater offensive punch of our battle groups as they keep the sea lanes open and carry the fight to the enemy.

The outermost offensive zone is provided by the P-3C Orion long range patrol aircraft, which operates worldwide from our own or allied bases.

The middle zone is provided by a battle group's organic aircraft, the S-3 Viking and the LAMPS (light airborne multipurpose) helicopters, the SH-2F (LAMPS MK I) and SH-60B (LAMPS MK III). These aircraft are the eyes and ears of the convoy or battle group. They are capable of ranging far and wide in minimum time, using a variety of acoustic and non-acoustic sensors and employing and impressive arsenal of weapons (like torpedoes and soon, Harpoon) to find and attack the foe.

The inner zone is provided by the SH-3 series helicopter. It is equipped with submersible "dipping sonar", which enables it to get its sonar transducer down where the submarines operate, taking away much of their advantage. We plan to replace the aging SH-3 with the substantially more capable SH-60F (a variant of the LAMPS III SH-60B) with initial procurement planned to begin in FY 1987.

MINE COUNTER MEASURES

Underwater warfare includes the use of mines and the employment of forces to counter their use by the enemy. Throughout history, mining has proven an effective and relatively inexpensive method of denying the enemy use of an area on land or at sea. The Warsaw Pact forces posses the world's largest inventory of sea mines, and they are upgrading their stockpile in both quality and quantity year by year.

The Navy currently employs the RH-53D as an MCM platform It was used in the Red Sea mine clearing operations of last year and proved very effective. It is, however, incapable of towing our most sophisticated MCM equipment, the ALQ-166 magnetic minesweeping device at its full operating speed. Last year, Congress approved FY 1985 advance procurement for a four-year multi-year procurement (FY 1986 to FY 1989) of the CH/MH-53E. The MH-53E is the first U.S. Navy helicopter designed from the beginning as a mine countermeasures aircraft and provides marked improvements over our existing platforms.

The procurement of aircraft to meet and beat the underwater threats posed by submarines and mines is, for obvious reasons, a high priority. The Aviation Procurement, Navy (APN) plan presented in our FY 1986 request was carefully weighed to balance a variety of competing priorities (for new procurement and for modifications to existing aircraft) to ensure an affordable, effective naval aircraft inventory. Anti-submarine and mine-countermeasures aircraft are well represented in that request.

Your assistance in ensuring that our ASW and MCM forces remain viable by growing to meet the threat is, now more than ever, vital.

The following paragraphs contain detailed information on each of the ASW and MCM aircraft in our FY 1986 request.

P-3C ORION

The P-3C, our shore-based, long range ASW aircraft, has been in production since 1969 and has enjoyed an evolutionary development of its sensor systems through a series of update programs. The lastest improvement is update III which adds the Proteus advanced signal processor, significantly improving the Orion's ability to detect, track, and attack quieter, new generation Soviet subs. The first update III P-3 aircraft entered fleet service in May of 1984. We have under development the next major update to the P-3C, update IV, which will increase capability to counter the quieting Soviet submarine threat. This modification is scheduled to enter the flet in 1991. We have 24 active P-3C squadrons, 21 of which operate the P-3C and 3 of which fly the P-3B. There are also 13 reserve squadrons, which fly P-3AS and P-3BS.

The P-3C inventory as of 1 January 1985 is 232 with 16 aircraft funded and undelivered. The procurement cost through the budget year is $5,361.4 million. The fiscal year 1986 request includes $496.5 million for the production of 9 aircraft and advance procurement for 9 aircraft in fiscal year 1987, the first year of a planned four year multi-year procurement. The recurring flyaway cost of the P-3C is $36.2 million.

S-3A VIKING

The S-3A Viking is a twin-engine jet, carrier-based, ASW aircraft which carries a crew of four. Its speed, range and detection capabilities make it highly effective as a component of a carrier battle group's ASW posture, and for use in such missions as mining, command and control. Threat warning, and surface survellance/identification/classification.

The S-3A is no longer in production. A weapon system improvement program, or WSIP will retrofit avionics and weapons sub-systems to counter the submarine threat of the 1990's. The resultant S-3B will incorporate state-of-the-art technology for increased radar detection range and classification, advanced acoustic processing, increased electronic support measures capability, and intergration with the Harpoon missile. Current plans call for conversion of 160 S-3As to S-3Bs. The FY 1986 budget requests $284.3 million in aircraft modification funds to continue the program.

LAMPS MK I AND III

Two types of LAMPS helicopters are employed on our surface ships to maximize their ASW capability. For those combatants which cannot handle the new SH-60B (LAMPS MK III), we must continue to provide the SH-2F (LAMPS MK I). The LAMPS MK I carries both active and passive sonobuoys and processes acoustic data through relay with its parent ship.

The SH-60B Seahawk is the air subsystem of the LAMPS MK III system scheduled for FFG-7, DD-963, DDG-993, and CG-47 class ships. The total MK III system includes the SH-60B, the ship's electronics, a helicopter landing system, and helicopter support facilities. LAMPS MK III is a computer-integrated, ship/helicopter combat system that greatly increases the flexibility, combat range and effectiveness of surface combatants. The SH-60B passes sonobuoy information through an advanced secure data-link to the LAMPS MK III ship for processing. In addition, the SH-60B has full onboard processing capability. Electronic support measures (ESM) data, radar data, and voice communications can also be passed on the data link.

Both LAMPS MK I and MK III systems can attack using ASW homing torpedoes. LAMPS ships and aircraft are needed to protect our battle groups and escort our convoys.

The SH-2F inventory as of 1 January 1985 is 99 with 35 aircraft funded and undelivered. The procurement cost through the budget year is $555.0 million. The fiscal year 1986 request includes $71.3 millon for the production of 6 aircraft. The recurring flyaway cost of the SH-2F is $9.6 million

The SH-60B inventory as of 1 January 1985 is 29 with 66 aircraft funded and undelivered. The procurement cost through the budget year is $2,987.6 million. The fiscal year 1986 request includes $378.8 million for production of 18 aircraft and advance procurement for 18 aircraft in fiscal year 1987. The recurring flyaway cost of the SH-60B is $14.0 million.

SH-60F

We conducted a competition to select our carrier inner-zone ASW helicopter. The SH-60F is our choice to replace the aging SH-3H aircraft. A development contract is being negotiated which provides a fixed price for development and production options for the first five lots of aircraft. We will be modifying two SH-60B aircraft to SH-60F's for test and evaluation of the weapons system. The SH-60F will employ the AQS-13F active dipping sonar and sonobuoys to detect and track submarines, and will be capable of attack using ASW homing torpedoes. The fiscal year 1986 request includes $30.0 million for advance procurement for 7 SH-60F aircraft in fiscal year 1987.

ASW SENSORS

The ability of our airborne ASW platforms to provide surveillance of large geographic areas with distributed sensors makes them an essential part of our zoned ASW offense. To be effective our platforms are dependent on the sensors they employ. Faced with a rapidly changing threat we are introducing revolutionary improvements in our sensors and tactics. These new developments include low cost alerting sensors that can be economically deployed and monitored in large numbers, sensors that can collect acoustic data independent of a monitoring platform, and high gain sensors for active and passive target prosecution. These sensors and associated processing systems are critical to our ASW success and we need your continued support so that the increased capability afforded by these initiatives can be achieved.

CH/MH-53E SUPER STALLION

The CH-53E is a 3-engine helicopter designed to lift 16 tons. It is a shipboard compatible, heavy transport helicopter configured for both Marine and Navy missions. Marine missions include amphibious/heliborne assault (providing for lift and movement of cargo and troops), and heavy lift shore operations (including tactical recovery of downed or damaged aircraft and equipment.) Navy missions include vertical onboard delivery (VOD) and airborne mine countermeasures (ACMCM). The first two MH-53Es, the AMCM version of the CH-53E, are being procured in FY 1985. The MH-53E will have significantly enhanced AMCM capability over the presently deployed RH-53D. AMCM associated improvements will also enhance the aircraft's ability to perform utility and special missions by significantly increasing range and navigation capability.

The CH-53E inventory as of 1 January 1985 is 78 with 14 aircraft funded and undelivered. The procurement cost through the budget year is $1,982.0 million. The fiscal year 1986 request includes $318.1 million for the production of 14 aircraft, 4 CH-53E's and 10 MH-53E's. Advance procurement in FY 1985-88 reflects a congressionally approved airframe multi-year procurement strategy for FY 1986-89 for procurement of 56 aircraft. The recurring flyaway cost of the CH/MH-53E is $14.5 million.

STATEMENT OF VICE ADM. EARL B. FOWLER, U.S. NAVY, COMMANDER, NAVAL SEA AIR SYSTEMS COMMAND

Admiral **Fowler**. Mr. Chairman, thank you for this opportunity to report to this subcommittee again on our shipbuilding program. I remain very optimistic about the naval shipbuilding program as I have been for the past 3 years. That is not bragging. I think the facts bear that out.

I have prepared testimony here which I believe adequately covers all the details, and to save this subcommittee's time, I would like to submit it for the record, and I have nothing further to cover.

Senator **Wilson** [presiding]. Thank you. We will include your prepared statement in the record.

[The prepared statement of Admiral Fowler follows:]

Prepared Statement of Vice Adm. Earl B. Fowler, Jr., USN, Commander, Naval Sea Systems Command

Mr. Chairman and members of the committee: I am Vice Admiral Earl B. Fowler, Commander, Naval Sea Systems Command. I thank this committee for your support over the years which has made my responsibilities less burdensome. I particularly thank you, Mr. Chairman, for your wisdom and counsel.

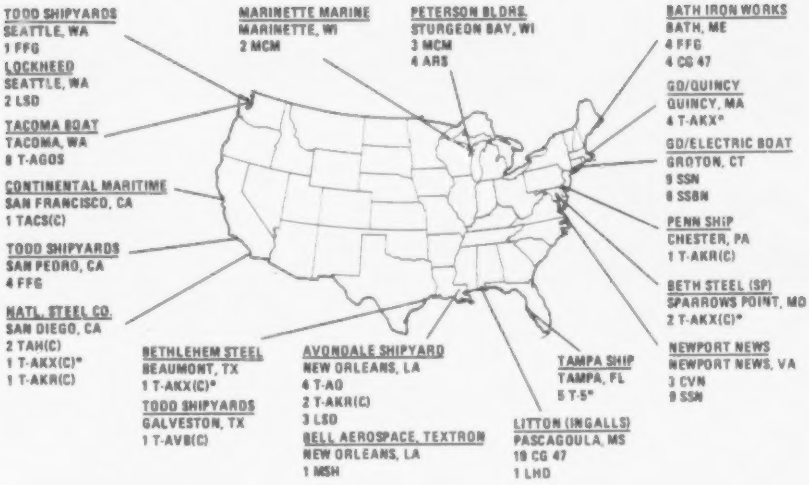
It is a pleasure to appear before you today to discuss the Navy Shipbuilding Program. I have included some charts to make the information presented easier to understand.

- Status of Current Navy Shipbuilding Program
    - — Major Private Shipyards and Shipbuilding Workload
    - — Delivery Assessment
    - — Program Status
    - — Competition
- Claims Prevention
- Capacity and Capability of Private Industry
    - — Projected Navy Workload for Private Shipbuilders
- Status of the Public Shipyards
- Navy Overhaul Program
- Summary
- Shipbuilding Claims Era

NAVY SHIPBUILDING PROGRAM

CHART 1

Chart 1 contains an outline of the subjects covered in this statement.


TODD SHIPYARDS
SEATTLE, WA
1 FFG
LOCKHEED
SEATTLE, WA
2 LSD
TACOMA BOAT
TACOMA, WA
8 T-AGOS
CONTINENTAL MARITIME
SAN FRANCISCO, CA
1 TACS(C)
TODD SHIPYARDS
SAN PEDRO, CA
4 FFG
NATL. STEEL CO.
SAN DIEGO, CA
2 TAH(C)
1 T-AKX(C)*
1 T-AKR(C)
MARINETTE MARINE
MARINETTE, WI
2 MCM
PETERSON BLDRS.
STURGEON BAY, WI
3 MCM
4 ARS
BETHLEHEM STEEL
BEAUMONT, TX
1 T-AKX(C)*
TODD SHIPYARDS
GALVESTON, TX
1 T-AVB(C)
AVONDALE SHIPYARD
NEW ORLEANS, LA
4 T-AO
2 T-AKR(C)
3 LSD
BELL AEROSPACE, TEXTRON
NEW ORLEANS, LA
1 MSH
LITTON (INGALLS)
PASCAGOULA, MS
18 CG 47
1 LHD
TAMPA SHIP
TAMPA, FL
5 T-5*
BATH IRON WORKS
BATH, ME
4 FFG
4 CG 47
GD/QUINCY
QUINCY, MA
4 T-AKX*
GD/ELECTRIC BOAT
GROTON, CT
9 SSN
8 SSBN
PENN SHIP
CHESTER, PA
1 T-AKR(C)
BETH STEEL (SP)
SPARROWS POINT, MD
2 T-AKX(C)*
NEWPORT NEWS
NEWPORT NEWS, VA
3 CVN
9 SSN

*PROGRAMS MANAGED BY MILITARY SEALIFT COMMAND

PRIVATE SHIPYARDS AND NAVY CONSTRUCTION PROGRAMS

(1 MARCH 1985)

CHART 2

Within the private sector, there are 20 shipyards currently building or converting ships for the U.S. Navy. These shipyards and the Navy ships they have under contract as of 1 March are shown in Chart 2.

SHIPTYPE	QTY	SHIPYARD
AMPHIBIOUS ASSAULT SHIP (LHD-1)	1	INGALLS
AIRCRAFT CARRIER (CVN)	3	NEWPORT NEWS
GUIDED MISSILE CRUISER (AEGIS) (CG)	14	INGALLS, BATH
LANDING SHIP DOCK (LSD)	5	LOCKHEED, AVONDALE
GUIDED MISSILE FRIGATE (FFG)	9	BATH, TODD LA & TODD SEATTLE
MINE COUNTERMEASURES (MCM)	5	PETERSON, MARINETTE MARINE
MINESWEEPER HUNTER (MSH)	1	BELL - TEXTRON
FLEET OILER (T-AO)	4	AVONDALE
TANKER (T-5)	5*	TAMPA SHIP
SALVAGE SHIP (ARS)	4	PETERSON
OCEAN SURVEILLANCE (T-AGOS)	8	TACOMA BOAT
FLEET BALLISTIC MISSILE SUBMARINE (OHIO CLASS)	6	ELECTRIC BOAT
ATTACK SUBMARINE (LOS ANGELES CLASS)	18	ELECTRIC BOAT/ NEWPORT NEWS
PRE-POSITIONING SHIP (TAKX)	4*	GENERAL DYNAMICS
PRE-POSITIONING SHIP (TAKX CONV)	4*	BETH STEEL (SP) BETH STEEL BEAUMONT/ NATIONAL STEEL
HOSPITAL SHIP (T-AH CONV)	2	NATIONAL STEEL
CRANE SHIP (T-ACS CONV)	1	CONTINENTAL MARITIME
FAST LOGISTIC SHIP (T-AKR CONV)	4	NATIONAL STEEL/ PENN SHIP/AVONDALE
AVIATION LOGISTICS SUPPORT SHIP (T-AVB CONV)	1	TODD, GALVESTON
TOTAL	99	

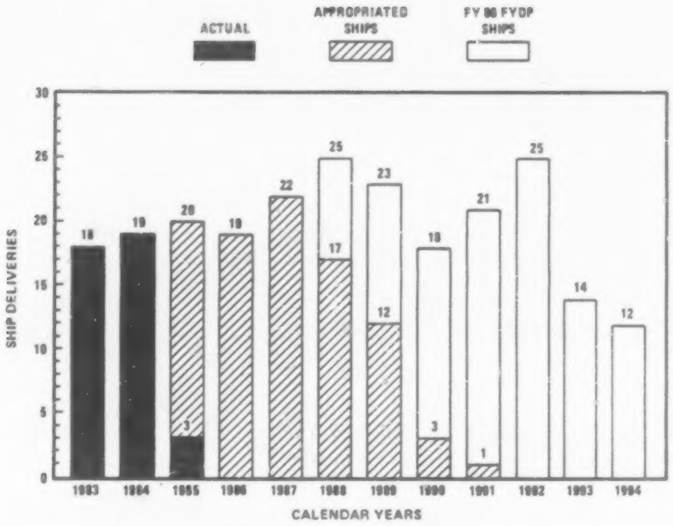
* Programs managed by Military Sealift Command

NAVY SHIPS UNDER CONSTRUCTION OR CONVERSION

(1 MARCH 1985)

CHART 3

Chart 3 depicts the Navy ships under construction or being converted in the private sector as of 1 March 1985. These include 87 new construction and 12 conversions. In addition, the battleship MISSOURI is being reactivated at Long Beach Naval Shipyard and USS FORRESTAL is in Service Life Extension (SLEP) at Philadelphia Naval Shipyard.



NAVY NEW SHIP CONSTRUCTION DELIVERIES
(1 MARCH 1985)
CHART 4

The Navy new construction and conversion program in general is doing well. The Navy's business relationships with the shipbuilders continue to improve. There are no new construction shipbuilding claims outstanding against the Navy. In 1984, 19 new construction and 6 conversion or reactivation ships were delivered, 12 early, 8 on time, and 5 late. In 1985, 20 new construction and 5 conversion ships are estimated to deliver, 16 on time, 5 early, and 4 late. Chart 4 shows in graphic form only the deliveries of new construction ships and does not include the conversions and reactivations in the shipbuilding program.

Shipbuilding program cost performance in recent years has also been good. The majority of ships delivered in 1984 were within their original budget as are most of the ships we currently have under contract. The overall shipbuilding program is within budget.

I will now briefly discuss the status of some of these programs.

BATTLESHIP REACTIVATION

The reactivation and modernization of the IOWA Class Battleships is progressing very well. USS NEW JERSEY demonstrated excellent capabilities during the past 18 months. Since returning from operations off Lebanon, she has completed a 5-month Post Shakedown Availability (PSA) and has returned to the Fleet. The PSA began in June and ended in November of last year. The reactivation of NEW JERSEY was completed within the $326 million appropriated.

USS IOWA was recommissioned on 28 April 1984. She has performed well during recent deployments to the Central American region. The ship's PSA is scheduled to begin on 4 April 1985 and end on 31 July 1985. IOWA will complete within the original budget except for the cost associated with acceleration of the reactivation as approved by the Congress to meet national security developments in the Middle East.

The reactivation and modernization of USS MISSOURI is about 35% complete. The ship is scheduled for sea trials during December 1985 and January 1986, and will deliver in April 1986. The production schedule is on track and the ship is within budget.

The planning for the reactivation and modernization of USS WISCONSIN has already begun. Design work and shipchecks have started. During FY 86, the detailed design will be completed, long lead equipment and material will be purchased, and the Request For Proposals for a competitive procurement will be issued. The reactivation and modernization contract is planned for award in January 1987 to an East or Gulf coast shipbuilder. Work will begin in April 1987. WISCONSIN is scheduled to deliver in January 1989.

AIRCRAFT CARRIER
SERVICE LIFE EXTENSION PROGRAM

USS FORRESTAL is presently undergoing Service Life Extension (SLEP) at the Philadelphia Naval Shipyard. She completed a very successful sea trial on 15 February 1985 and is scheduled for completion on 20 May 1985. The next aircraft carrier to undergo SLEP in the Philadelphia Naval Shipyard will be USS INDEPENDENCE in April 1985.

SLEP has proven to be effective, extending the service life and providing some modernization of capability at an affordable cost.

AEGIS GUIDED MISSILE CRUISER

Congress has authorized 16 CG 47s, two of which have been commissioned and are active in the Fleet. VINCENNES (CG 49) and VALLEY FORGE (CG 50) will deliver this year. The balance are at various stages of construction at Ingalls Shipyard and Bath Iron Works. All are within budget and on schedule.

USS TICONDEROGA (CG 47) was praised for her unprecedented control of the air situation on her first deployment to the Eastern Mediterranean during the Lebanon Crisis.

GUIDED MISSILE FRIGATE

The FFG 7 Class Guided Missile Frigate Program has awarded contracts for all 51 USN ships and four Foreign Military Sales (FMS) Royal Australian Navy (RAN) ships: 24 ships to Bath Iron Works (the lead shipyard); 18 to Todd Pacific Shipyards Corp., Los Angeles Division; and 13, including the 4 RAN ships, to Todd Pacific Shipyards Corp., Seattle Division. The contract for the last ship in the program (FFG 61) was awarded 28 November 1984 to Todd, Los Angeles.

As of 1 March 1985, 42 of the USN ships and all 4 RAN ships have been delivered. Of the seven ships delivered to the U.S. Navy during 1984, six delivered earlier than the contract delivery dates and one delivered on the contract date. The seven ships were delivered a total of 25.5 months ahead of delivery dates. With the exception of the recently awarded FY 84 ship (FFG 61), both Bath Iron Works and Todd, Los Angeles are projecting accelerated deliveries for the remaining ships. The remaining ship at Todd, Seattle (FFG 52) is projected to deliver on the contractual date.

The FFG program at Bath Iron Works continues to be an exceptional program with the Government share of the estimated contractual cost underrun expected to be over $120 million on their first 19 delivered follow ships. Todd, Los Angeles is also now projecting significant cost underruns on their remaining FFG contract. These underruns are genuine because the prices were arrived at through competition among the three yards.

MINE COUNTERMEASURES SHIP

There are currently three Mine Countermeasures Ships (MCM) under construction at Peterson Builders and two at Marinette Marine. The MCM program has had several technical issues, both in the design of the ships and in the new combat systems. New shock standards, stringent electromagnetic interference (EMI) criteria, state-of-the-art equipment with innovative methods for providing low magnetic signature, and significant improvements in mine hunting sonars and mine neutralization equipment will make these ships at the same time both capable and complex. We have not built a mine warfare ship in many years; therefore, there was more of a learning process for ourselves, the shipbuilders, and the equipment suppliers than we had contemplated. The manufacture and initial testing of the low magnetic reduction gears has taken longer than anticipated due primarily to leaking seals and bad forgings. We are continuing to work on the mitigation of EMI, and we are now completing the proper shock design for the equipment and its foundations. The Precise Integrated Navigation System has had development delays, but current at-sea testing indicates performance within its mission performance requirements. Additional testing is scheduled. The recent engine rotation issue on MCM 1 and 2 has been resolved. Several components are being changed by the engine manufacturer to reverse the engine rotation. This diesel engine was originally designed to rotate in the direction to be used in MCM 1. MCM 3-5 will have the new low magnetic engine, selected as a result of competition last year. We have had lengthy contract negotiations and technical design work to include these engines in the ships. We have taken positive actions to resolve all the known problems. MCM 6-9 have not yet been awarded because we want to ensure that prior to award, the necessary technical changes have been added to the specifications, are understood by the shipbuilders and vendors, and that adequate testing is planned to ensure satisfactory performance.

MINESWEEPER HUNTER

Last November, a contract was awarded to Bell Aerospace in New Orleans, Louisiana for the lead ship of the MSH program. This award is the culmination of a competitive acquisition process where the shipbuilding industry designed the

MSH to meet specified coastal Minesweeper Hunter operational requirements within a cost constraint. The shipbuilders were not constrained as to hull type or specific marine technologies. The Bell MSH design uses Glass Reinforced Plastic (GRP) hull technology combined with a Surface Effect Ship (SES) type hull. This will introduce ship size GRP technology to the U.S. Navy—a technology used by U.S. yacht and fishing boat builders and several European navies for their minesweeper hunters. The surface effect hull, riding on its air cushion, should provide advantages in shock, magnetic, and acoustic protection for the ship. Bell is also currently building the Landing Craft Air Cushion (LCAC) and has experience in this technology. The lead ship contract has options for eight follow ships, programmed in FY 86 and FY 87. The second flight of eight ships will be competed using the lead ship design package. Thus, the whole MSH program, from design initiation to final ship delivery, will have been conducted on a totally competitive basis.

OCEAN SURVEILLANCE SHIPS

The first four T-AGOS ships have been delivered including one on 19 February and the fifth has been launched. The first two ships are deployed in active status and have exceeded mission expectations. Recent equity investment by Midland Capital Corporation should provide a more stable financial base. However, the financial situation at Tacoma Boat is still cause for concern.

DELIVERY ASSESSMENT

Compared to the delivery dates when I appeared before you on the subject of shipbuilding last April, a total of 3 ships are now estimated to be delivered earlier, 15 are later (7 of these from the same shipyard, Peterson Builders), and 60 estimated ship delivery dates are either unchanged from our projections of last year or are new ship awards. These are not comparisons to contract delivery dates as my prior statements were. The reasons for the later estimates are summarized below:

- LSD—A 3-month construction delay on LSDs 42 and 43 due to shipbuilder performance and a 4-month delay on LSD 44 to incorporate a Collective

Protective System to protect the ship from nuclear fallout and chemical and biological warfare.

- FFG—A 1- to 2-month delay on two ships due to a re-evaluation of our attempt to accelerate Government furnished equipment deliveries and thus the ship deliveries. These ships are still expected to deliver 3 to 4 months ahead of their contract delivery dates. The third FFG was delayed about 1½ months due to the reduction in employment at the Todd, Los Angeles yard last summer and the resulting reduction in construction progress. This ship also is still scheduled to deliver well ahead of its contract delivery date.
- MCM—The delivery dates of the MCMs are currently under Navy review. The dates will be later than estimated last February. I have already discussed the reasons for the delays. They will probably vary from 3 months to a year, but we will have better estimates when we have completed our assessment.
- ARS—1- to 5-month delays on four ships. One of the ships is delayed due to the winter closure of the St. Lawrence Seaway. The other three ship delays are based on the current evaluation of shipbuilder progress.
- SSN—A 4½-month delay on SSN 718 based on the current Navy evaluation of shipbuilder progress.

COMPETITION

The Navy continues to emphasize competition in its acquisition programs. In FY 85, all shipbuilding and conversion contracts except the OHIO Class submarines will be competitively awarded. All 131 ships in the FY 86-90 shipbuilding plan except the OHIO Class submarines will be competitively awarded.

Competition and reduced escalation requirements have resulted in savings in construction costs of the seven SSN 688 Class submarines awarded during FY 84 and FY 85. In FY 84, two submarines were awarded to Electric Boat Division and one submarine to Newport News Shipbuilding at a total cost savings of $107.6 million as compared to the budget request. Both contracts included option prices for the construction of the FY 85 submarines. The Navy's FY 85 budget reflected these favorable competitive option prices and requested additional funds for configuration changes. The Navy subsequently requested new proposals to incorporate the configuration change into the FY 85 submarines. Competition between the two shipbuilders for construction of SSN 688s lowered the original estimates provided by Newport News. This resulted in awards of three submarines to Newport News and one to Electric Boat with savings of $78.9 million as compared to the budget request.

LSDs 41, 42, and 43 were awarded to Lockheed Shipbuilding Company. The LSD 44 contract, awarded to Avondale Shipyard, was a competitive fixed price incentive contract with options for ships in FY 85 and FY 86. The option for two ships in FY 85 has been exercised. Because of the intense competitive atmosphere that prevailed, the Navy saved $343.5 million over the budget request amounts in FY 84, FY 85, and FY 86.

The Navy has also realized the cost benefits of competition in the CG 47 program. Construction of follow on AEGIS ships was first competed in FY 84 with two ships awarded to Ingalls and one to Bath Iron Works. Approximately $224.6 million in savings, compared to the budget request, was realized as a result. In FY 85, three CG 47 cruisers were again awarded competitively. Bath won two ships and Ingalls one, saving nearly $154.4 million more. The FY 85 award also included options for three FY 86 ships. These option prices are reflected in the FY 86 budget request and also reflect a savings as compared to our original FY 86 estimates.

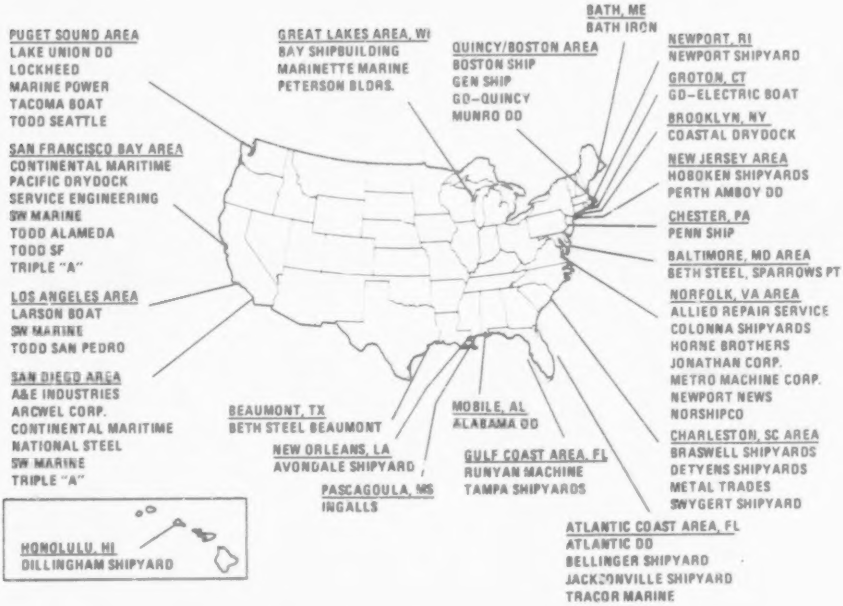
This year's budget also outlines Navy plans to compete the SPY-1 radar and related AEGIS Weapons System components. Second source selection of major elements will begin this year, with all major elements competed by FY 90.

CLAIMS PREVENTION

The economy of the country continues to change. Inflation has diminished for the past few years and is expected to remain under control. We are using only a portion of the capacity of the shipbuilding industry. We are not developing new shipyards. The shipyards that we contract with have relatively mature management. The Navy has implemented several changes in the way we do business. We are careful not to overload a given yard. There is time planned between the construction of the lead and follow ships of a new class. We now pay for changes in law that a shipbuilder cannot foresee. Our escalation clauses provide a more accurate measure of the effects of inflation during the construction of the ship. We have a Notification of Changes clause in all our contracts that requires periodic identification of changes made to the contract and releases of liability for prior events. We are aware of the impact of and Navy responsibility for GFI and GFE. This is closely monitored and carefully managed. We put a great deal of emphasis on its accuracy and timely delivery. Considering these changes and the shipbuilders' and our continuing performance improvement, a repeat of claims like the 70s is unlikely.

CAPACITY AND CAPABILITY OF PRIVATE INDUSTRY

The Navy's proposed five year shipbuilding program includes 107 new construction ships and 24 ships to be converted or reactivated in FY 86 through FY 90. The capacity and capability of the industry are more than adequate to execute the Navy's program.


PUGET SOUND AREA
LAKE UNION DD
LOCKHEED
MARINE POWER
TACOMA BOAT
TODD SEATTLE
SAN FRANCISCO BAY AREA
CONTINENTAL MARITIME
PACIFIC DRYDOCK
SERVICE ENGINEERING
SW MARINE
TODD ALAMEDA
TODD SF
TRIPLE "A"
LOS ANGELES AREA
LARSON BOAT
SW MARINE
TODD SAN PEDRO
SAN DIEGO AREA
A&E INDUSTRIES
ARCWEL CORP.
CONTINENTAL MARITIME
NATIONAL STEEL
SW MARINE
TRIPLE "A"
HONOLULU, HI
DILLINGHAM SHIPYARD
GREAT LAKES AREA, WI
BAY SHIPBUILDING
MARINETTE MARINE
PETERSON BLDRS.
QUINCY/BOSTON AREA
BOSTON SHIP
GEN SHIP
GD–QUINCY
MUNRO DD
BATH, ME
BATH IRON
NEWPORT, RI
NEWPORT SHIPYARD
GROTON, CT
GD–ELECTRIC BOAT
BROOKLYN, NY
COASTAL DRYDOCK
NEW JERSEY AREA
HOBOKEN SHIPYARDS
PERTH AMBOY DD
CHESTER, PA
PENN SHIP
BALTIMORE, MD AREA
BETH STEEL, SPARROWS PT
NORFOLK, VA AREA
ALLIED REPAIR SERVICE
COLONNA SHIPYARDS
HORNE BROTHERS
JONATHAN CORP.
METRO MACHINE CORP.
NEWPORT NEWS
NORSHIPCO
CHARLESTON, SC AREA
BRASWELL SHIPYARDS
DETYENS SHIPYARDS
METAL TRADES
SWYGERT SHIPYARD
BEAUMONT, TX
BETH STEEL BEAUMONT
NEW ORLEANS, LA
AVONDALE SHIPYARD
PASCAGOULA, MS
INGALLS
MOBILE, AL
ALABAMA DD
GULF COAST AREA, FL
RUNYAN MACHINE
TAMPA SHIPYARDS
ATLANTIC COAST AREA, FL
ATLANTIC DD
BELLINGER SHIPYARD
JACKSONVILLE SHIPYARD
TRACOR MARINE

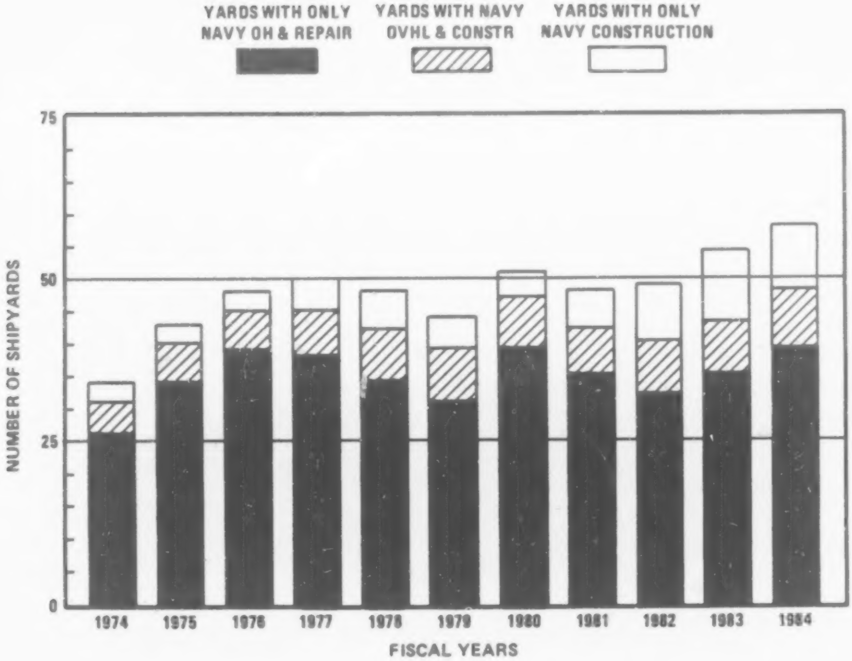
PRIVATE SHIPYARDS WITH SHIPWORK DURING FY 84

(SHIP CONSTRUCTION, OVERHAUL, AND REPAIR)

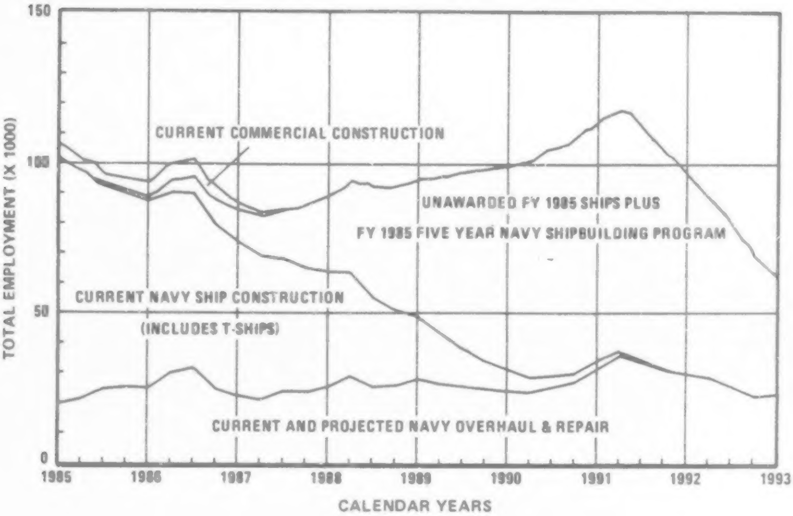
(58 SHIPYARDS)

CHART 5

In FY 84, NAVSEA had work performed in 58 different shipyards as shown in Chart 5. Chart 6 shows the breakdown of the yards that NAVSEA has done business with over the past 10 years. Over the past 3 years, that number has been on the increase with the majority of the yards involved in Navy overhaul and repair work. I will discuss the Navy's overhaul and repair work later in my testimony. As of the end of the first quarter of FY 85, 40 different private yards had performed Navy work. This is the same number of yards we had at that time last year. Twelve of these 40 shipyards are involved in only Navy ship construction, 18 in Navy ship overhaul and repair, and 10 in both Navy ship construction and overhaul and repair.



PRIVATE SHIPYARDS WITH NAVY SHIPWORK
NUMBER OF YARDS PER FISCAL YEAR
CHART 6

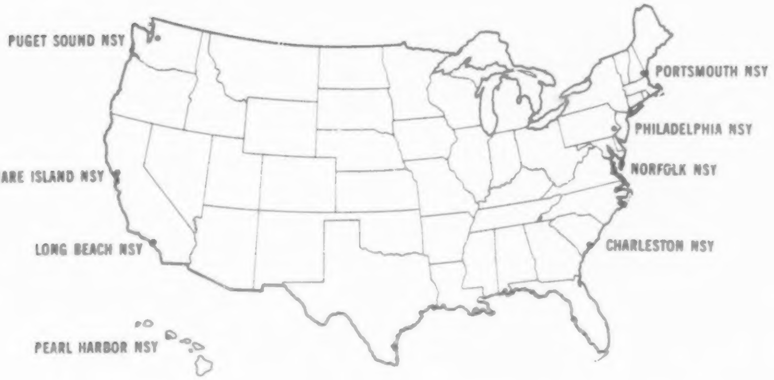


NAVY SHIP CONSTRUCTION, REPAIR AND OVERHAUL
WORKLOAD FORECAST
PRIVATE SECTOR
CHART 7

PROJECTED NAVY WORKLOAD FOR PRIVATE SHIPBUILDERS

Chart 7 depicts the Navy's forecast of employment in private sector shipyards resulting from current commercial ship construction, Navy ship construction, and Navy repair and overhaul. The projected ship construction work is derived from the Navy's FY 86 Five Year Shipbuilding Program. As of November 1984, the total employment in the 40 yards which have performed Navy ship work thus far in FY 85 was 112,700. Of these 112,700 employees, 18,700 were applied to Navy ship repair and overhaul, 84,500 to Navy ship construction or conversion, with the balance of 9,500 being applied to commercial repair and other industrial work. In other words, 92 percent of these workers are employed on Navy contracts.

NAVY OVERHAUL PROGRAM

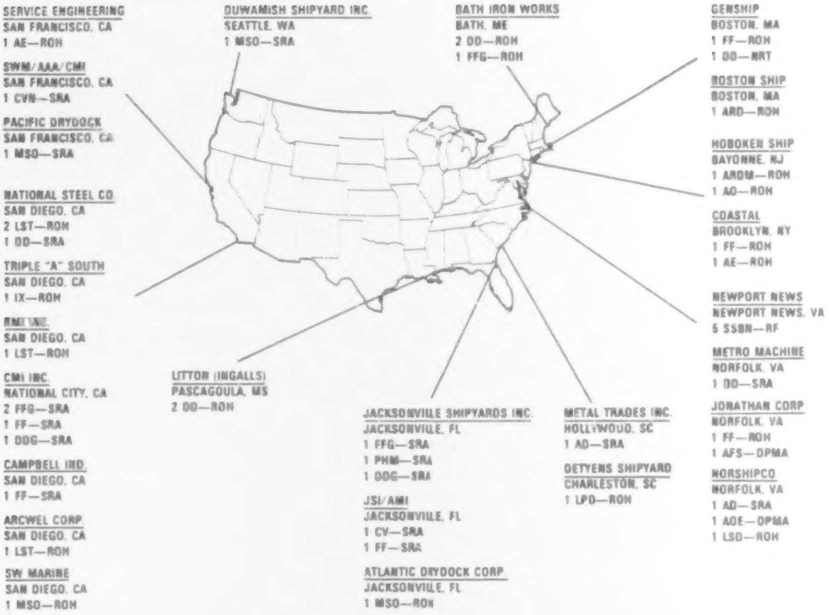


PUBLIC SHIPYARDS
CHART 8

The Navy's depot maintenance capability is an indispensable part of the Fleet's readiness for war. It is made up of two components: the eight geographically dispersed Naval shipyards shown in Chart 8 and the private sector shipyards that regularly perform Navy depot maintenance and modernization work. Since 1967, the eight Naval shipyards have done repair and modernization work exclusively. Six of these eight yards are qualified for the overhaul of nuclear-powered ships. The combined employment level of the eight public yards was approximately 78,100 at the end of January 1985 and will be reduced to 73,000 total employment [redacted] by the end of 1985. This will result from the reduced numbers of ship overhauls and our desire to retain the vitality of the private sector to support the Navy. The Naval shipyards are maintained at the minimum size and levels of employment necessary to accomplish their assigned portions of the annual peacetime depot maintenance and modernization workload on complex ships. The Naval shipyards maintain major, formal training programs. Unlike other labor intensive industries, much Naval shipyard work requires highly skilled workers. The current investment in shipyard training among the eight Naval shipyards is spent on the development of newly-hired workers from unskilled to the full journeymen level, on nuclear training and training of journeymen in the installation and repair of new and complex shipboard systems. We invest in training programs like these to ensure the competence of personnel to work on sophisticated systems and to retain a stable workforce. Ships with the most complex combat and propulsion systems are assigned to Naval shipyards to maintain their readiness for mobilization work and battle damage repair. This preserves the Navy's required readiness for war and allows the maximum amount of ship depot maintenance work to be provided to the private sector to support a viable ship repair industry for wartime mobilization.

PRIVATE SECTOR

The remaining peacetime depot maintenance workload is accomplished by the private sector shipyards. Approximately 18,700 people in private shipyards are employed on the Navy overhaul program. Newport News Shipbuilding and Dry Dock Company is the only private shipyard that performs submarine overhaul and repair work and as of November 1984 employed 6,800 people for this work. Of the 58 yards that did business with the Navy in FY 84, 39 performed overhaul and repair work only. As of 1 March 1985, 23 private yards were conducting overhaul and repair work only on Navy ships and another 5 yards were performing both overhaul and repair and new construction or conversion work. Chart 9 shows a distribution of the overhaul and repair work.


SERVICE ENGINEERING
SAN FRANCISCO, CA
1 AE—ROH
SWM/AAA/CMI
SAN FRANCISCO, CA
1 CVN—SRA
PACIFIC DRYDOCK
SAN FRANCISCO, CA
1 MSO—SRA
NATIONAL STEEL CO
SAN DIEGO, CA
2 LST—ROH
1 DD—SRA
TRIPLE "A" SOUTH
SAN DIEGO, CA
1 IX—ROH
RMI INC.
SAN DIEGO, CA
1 LST—ROH
CMI INC.
NATIONAL CITY, CA
2 FFG—SRA
1 FF—SRA
1 DDG—SRA
CAMPBELL IND.
SAN DIEGO, CA
1 FF—SRA
ARCWEL CORP
SAN DIEGO, CA
1 LST—ROH
SW MARINE
SAN DIEGO, CA
1 MSO—ROH
DUWAMISH SHIPYARD INC.
SEATTLE, WA
1 MSO—SRA
LITTON (INGALLS)
PASCAGOULA, MS
2 DD—ROH
BATH IRON WORKS
BATH, ME
2 DD—ROH
1 FFG—ROH
JACKSONVILLE SHIPYARDS INC.
JACKSONVILLE, FL
1 FFG—SRA
1 PHM—SRA
1 DDG—SRA
JSI/AMI
JACKSONVILLE, FL
1 CV—SRA
1 FF—SRA
ATLANTIC DRYDOCK CORP
JACKSONVILLE, FL
1 MSO—ROH
METAL TRADES INC.
HOLLYWOOD, SC
1 AD—SRA
DETYENS SHIPYARD
CHARLESTON, SC
1 LPD—ROH
GENSHIP
BOSTON, MA
1 FF—ROH
1 DD—NRT
BOSTON SHIP
BOSTON, MA
1 ARD—ROH
HOBOKEN SHIP
BAYONNE, NJ
1 ARDM—ROH
1 AO—ROH
COASTAL
BROOKLYN, NY
1 FF—ROH
1 AE—ROH
NEWPORT NEWS
NEWPORT NEWS, VA
5 SSBN—RF
METRO MACHINE
NORFOLK, VA
1 DD—SRA
JONATHAN CORP
NORFOLK, VA
1 FF—ROH
1 AFS—DPMA
NORSHIPCO
NORFOLK, VA
1 AD—SRA
1 AOE—DPMA
1 LSD—ROH

PRIVATE SHIPYARDS WITH OVERHAUL AND REPAIR PROGRAMS
(1 MARCH 1985)
CHART 9

In FY 84, 57 ships were overhauled (53 active ships and 4 reserve). Thirty-two of these overhauls were performed in the private sector and 25 in public yards. Of the 32 private overhauls, 22 were done by small business firms. Of the total private sector dollar amount for overhaul and other repair work, 38% was awarded to small business. The FY 86 program contains 41 Navy ship overhauls. This is a downward trend over the past years, from a high of 90 in FY 77 to 41 in FY 86.

Concurrently, more ships are being inducted into engineered operating cycles and phased maintenance programs. The net result is a reduction in the number of overhauls and a corresponding increase in the number of Selected Restricted Availabilities (SRA). SRAs have increased from 88 conducted in FY 84 to 104 planned in FY 86. Similarly, Phased Maintenance Availabilities (PMAs) have increased from 10 conducted in FY 84 to 30 planned in FY 86. Nearly all surface ship SRAs and PMAs are accomplished in the private sector. In FY 85, approximately 36% of the overhaul and repair dollar amount is planned for the private sector. Excluding nuclear propelled ships, the percentage is approximately 53%. In FY 86, the private sector is projected to receive 34% of the overhaul and repair dollars. When the nuclear ships are excluded, the percentage is 58%.

At least half of the overhaul and repair workload are complex ships, mostly nuclear. This work can be done by Naval shipyards and a relatively few private yards. The rest of the work is competed among a large number of yards. This keeps the competition keen, but there is not enough Navy work to keep all of the yards fully loaded.

As part of the overall effort to reduce costs, NAVSEA has developed a four-ship pilot program starting in FY 85 to determine the benefits of competing ship repair and overhaul work between public and private shipyards. The approach will provide a comparison of costs, quality of performance, and other possible benefits. This comparison cannot realistically be made from bid or award prices; it must be made by analyzing the actual work accomplished. This will involve a thorough study of the costs and quality of overhauls in the public and private sectors.

Under the pilot program, two competitions will involve pairs of ships from the same class, two amphibious transport docks (LPD) on the West Coast and two frigates (FF) on the East Coast. Equivalent work packages will be prepared for each ship in each competition. A coastwide solicitation for the two ships in each competition will be issued to both public and private shipyards. The successful offeror will be the one, among those evaluated technically acceptable, who submits the lowest price except that one ship will go to the public sector and one to the private. Technical and fiscal responsibility will be validated by a pre-award survey. This will ensure an equal basis for the execution phase of the competition.

Changes to the work package for each ship during the overhaul will be controlled as closely as possible so that the level of effort for each will remain essentially equivalent. Audits will be conducted to keep track of actual costs. The quality of work will also be monitored during performance. The Navy Board of Inspection and Survey, along with representatives of both the private and public shipyards, will conduct a quality evaluation after the work has been completed.

When the overhauls are completed and all data relating to cost and quality have been collected and analyzed, the private and public shipyard's performance will be compared by independent evaluators, as well as representatives from all participating parties. Benefits derived from the competition between the two can then be determined.

Accounting practices implemented for the pilot program will take into consideration policies regarding the capitalization of the mobilization base and stabilized manday rates in the public shipyard, and profits for the private shipyard, in order to obtain an equitable basis for cost comparisons.

The following ships are planned for the pilot program:

- In FY 85 and 86, two LPDs, USS DULUTH (LPD 6) and USS CLEVELAND (LPD 7) respectively, homeported on the West Coast.
- In FY 87, two FF 1052s, USS BOWEN (FF 1079) and USS AYLWIN (FF 1081), homeported on the East Coast.

These ships have been dedicated to the pilot program in order to allow sufficient lead time to develop specifications and plan the competition.

SUMMARY

The Navy's shipbuilding program is mature—it has enjoyed sustained good performance by any standard applied. This budget does not include a request for additional escalation funds for prior year programs due to the low rates of inflation we continue to experience. For the second year in a row, there are also no requested funds for cost growth in prior years' programs due to continuing improved contractor performance, savings as a result of competition, and an overall improvement in Navy management of the shipbuilding program. The program is not without occasional problems nor should we expect it to be when the size and complexity is considered. This is not the time to relax or become complacent, but to realistically assess and continue our efforts to improve, ever vigilant for future changes in the environment.

The Navy's repair and modernization program also enjoys continuing improvement. The major emphasis is on cost reduction, fixed price type contracts, and competition. Quality in our ships is not a variable—lives depend on quality.

As a matter of historical interest and understanding, I have included the following summary of the record of the shipbuilding claims era.

THE SHIPBUILDING CLAIMS ERA

In recent months, there has been renewed press coverage and interest in the shipbuilding claims. The Navy's experience during the claims era (the decade of the 70s) is summarized here. During the late 60s to the late 70s, the shipbuilding program was following some previously untried procurement methods such as total package procurement. In the 1970s, only nine private shipyards were building Navy ships. Three of the nine shipyards were performing over three quarters of the work. The industry experienced double digit inflation, material shortages, and labor instability. Problems were encountered with the specifications and drawings provided by the Navy. The shipbuilders were working under fixed price incentive contracts with escalation clauses that did not fully compensate for inflationary costs. The major shipbuilders experienced large cost overruns which could not be settled with the Navy. The result was claims cumulatively totaling $2.7 billion by the end of 1977. An overview of the claims and settlements at the three major shipyards, Newport News Shipbuilding, Electric Boat Division of General Dynamics Corporation, and Ingalls Shipbuilding Division of Litton Systems, Inc. follows. There were other claims at other yards, but these three shipbuilders' claims were the largest.

NEWPORT NEWS

From 1968 through 1971, Newport News was awarded six contracts for a number of ships including five nuclear-powered guided missile cruisers, two nuclear-powered aircraft carriers, and seven nuclear-powered attack submarines including the lead ship of the SSN 688 Class. All of these contracts were fixed price incentive or ultimately were converted to fixed price incentive contracts.

All of these contracts contained escalation clauses due to the length of the performance period of the contracts. The Navy agreed to pay the contractor for changes in labor and material costs (over and above the contract price), based on changes in the Labor and Material Indices of the Bureau of Labor Statistics. However, the Navy would pay escalation costs only until the original contract delivery date of the ship. Nevertheless, if work slippage was caused by Government responsible actions, the shipbuilder's equitable adjustment for the actions would include the impact of inflation. Even in cases where the Navy did cause the delay by its actions, the shipbuilder could still suffer a cash flow problem since the equitable adjustment request was not usually acted upon until some time after the additional costs caused by the double digit inflation were incurred.

In order to meet Navy contract commitments, Newport News increased its employment from an early 1971 level of approximately 18,000 to about 28,000 in early 1973. This level decreased to 23,000 by 1975. At the time Newport News was awarded the shipbuilding contracts, they assured the Navy that the company would achieve the necessary manpower buildup and that the workforce could be efficiently increased to a level of over 30,000. By the time their employment reached 28,000 in early 1973, the company found it was unable to obtain skilled workers in the numbers required. This resulted in a general reduction in skill levels and an increase in the labor and time necessary to build the ships.

From June 1973 to March 1976, six claims were submitted regarding the 14 ships mentioned above for a total adjustment of approximately $892.6 million to the contract pricing structure. Generally, Newport News cited deficient and untimely Government furnished equipment (GFE) and Government furnished information (GFI), excessive inspection, changes and delay and disruption. The claim on two of the CGNs was settled in early 1977; the remaining five claims were settled in October 1978. The settlements totaled $209.5 million of the almost $900 million claimed. Most of the $209.5 million was determined by the Navy to be due the contractor pursuant to the terms of the contract; however, $23.2 million reflected adjustments made to four of the contracts pursuant to the provisions of Public Law 85-804 for Newport News releasing future claims on these four contracts and for correcting a mutual mistake in one contract.

In a number of 1977 reports to the NAVSEA Inspector General, Admiral Rickover stated that Newport News' claims, among others, warranted investigation for possible violation of fraud or false claims statutes. These reports were referred by the Navy to the Justice Department in February of 1978, and in August of 1983, the Justice Department declined prosecution.

ELECTRIC BOAT

As with Newport News, Electric Boat was awarded contracts for several ships within a short period of time: two contracts for 18 follow SSN 688 Class nuclear attack submarines in 1971-73 and a contract for 5 OHIO Class submarines, including the lead ship, in 1974-77. The contracts were fixed price incentive with escalation clauses similar to those in Newport News contracts. Electric Boat also expanded its workforce from 11,000 employees in 1972 to almost 26,000 in 1976, resulting in a reduction in skill levels, and an increase in the labor and time to build the ships.

Electric Boat submitted its first SSN 688 Class claim in 1975 in the amount of $252 million. The principal basis of the claim on the first SSN 688 Class contract was that the Navy, through its design agent (Newport News), failed to provide suitable and timely design information (GFI) in accordance with the contract. This claim was later decreased to $231 million and was settled under the terms of the contract for $97 million in April of 1976.

In December 1976, Electric Boat filed two claims on the two SSN 688 Class contracts, one for $121.3 million and the other for $442.6 million. The first claim cited delay and disruption caused by Navy drawing revisions, as well as the Navy's failure to maintain a reasonable interval between the lead ship (SSN 688 at Newport News) and the first follow ship at Electric Boat, resulting in costly rework and ship completion delays. The second claim cited delay and disruption resulting from delays to ships on the first contract as well as unsuitable design data and an inadequate escalation clause.

On 9 June 1978, a settlement was reached using in part the authority of Public Law 85-804. The total proposed settlement was $484 million, $125 million on account of the claim (this amount includes $66.5 million that had been paid previously) and $359 million under Public Law 85-804. Electric Boat agreed to absorb a projected loss of $359 million on the two contracts. The $359 million figure was half of the projected loss on the two contracts after the $125 million was considered. Since the proposed Public Law 85-804 settlement exceeded $25 million, the Navy notified the Congress of the proposed action. Both the House and Senate Armed Services Committees held hearings on the proposed settlement. Neither house adopted a resolution disapproving the settlement and, accordingly, the settlement was effective on 20 September 1978. The latest report by the Comptroller General (dated 18 May 1984) indicates that Electric Boat will lose $487 million, $128 million more than their $359 million share. The last ship covered by this settlement was delivered in December 1984.

These claims were also forwarded by the Navy to the Justice Department for investigation in early 1978. In December 1981, the Justice Department decided not to prosecute. Following early 1984 discussions with Mr. P. Takis Veliotis, a fugitive from justice residing in Greece, the case was reopened in May 1984.

Electric Boat in June 1981 submitted a request for insurance reimbursement claiming rework in structural welding on SSN 698. Claims for other ships were also being prepared. The claim was submitted pursuant to the insurance provision of the contract. The Navy, after analysis of the claim, found that the type of nonconformances reported in the claim were for work necessary for the construction of a completed ship and therefore were not covered risks. The Navy rejected the claim and in October of 1981, it was withdrawn. The Congress was briefed on the subject in March of 1982 as part of my testimony to the Seapower and Strategic and Critical Material Subcommittee of the House Armed Services Committee.

INGALLS

In the 1970s, Ingalls submitted four claims, the largest of which concerned the LHA contract; it was settled in part under the authority of Public Law 85-804.

The first claim, known as Project X, was ultimately decided by the Armed Services Board of Contract Appeals (ASBCA) and involved three contracts for four nuclear attack submarines. In May 1971, Ingalls submitted a cross contractual impact claim to the Navy asserting that the construction of 19 other ships was delayed and was being performed with less efficiency, resulting in increased costs, due to the Navy's insistence that Ingalls give priority to the four submarines. The claim was appealed to the ASBCA in the amount of $131.5 million. Ingalls was awarded $50.8 million by the ASBCA.

A $31.2 million claim was submitted in 1969 regarding three other submarines. Ingalls claimed, among other things, delay and disruption caused by the Navy's failure to deliver hull steel in a timely manner. After appeal to the ASBCA, Ingalls was awarded approximately $17.2 million in 1976. However, payment was withheld pending the conclusion of a federal grand jury investigation of possible fraud. Ingalls was subsequently indicted in April 1977. Payment was made in 1978 under court order. The criminal case was finally tried in 1984 and Ingalls was acquitted of all charges. Civil fraud charges are still pending.

A third claim was submitted in April 1971 regarding the construction of four ammunition ships. The final claim for $29.7 million was settled by the Navy in September 1974 for $18 million.

The largest and most well known Ingalls claim involved the construction of the amphibious assault ships, LHAs. Ingalls was competitively awarded this multi-year, fixed price incentive contract with an escalation clause for nine ships in May 1969. The contract incorporated a total package procurement concept whereby the shipbuilder had total systems responsibility, from initial design through construction. The contract included an escalation clause similar to those in the Newport News and Electric Boat contracts.

In June 1970, Ingalls was awarded another competitive total package procurement contract for 30 SPRUANCE (DD 963) Class destroyers. This was also a multi-year, fixed price incentive contract with an escalation clause. Both ship classes were to be built at Ingalls' new West Bank yard, designed, but at the time untested, to use new modular construction techniques and material flow patterns to gain the advantages of assembly line production. Like Newport News and Electric Boat, Ingalls employment levels increased from 10,000 in 1969 to a peak of 25,000 in 1977. Ingalls experienced the same type of management and skill level problems as the other yards.

In January 1971, the Navy officially notified Ingalls that it was reducing the number of ships to be delivered under the LHA contract from nine to five under the cancellation clause. Ingalls submitted a proposal for firm pricing of the remaining five ships in March 1972. The proposal also included the submission of a claim. The original claim was for $475.5 million and alleged design changes directed by the Navy, excessive involvement by the Navy in the design process and late, defective, unsuitable, or changed GFI and GFE. In 1975, during the appeal to the ASBCA, the claim was increased to $505 million. Additional increases to the claim were submitted, including a June 1976 increase to $701.7 million and a September 1977 increase to $1.076 billion. By June 1978, the claim amount had reached $1.088 billion.

In June 1978, the Navy and Ingalls reached agreement on a settlement of the claim in part pursuant to Public Law 85-804. The DD 963 contract was included in the settlement even though there were no claims pending on the DD 963 contract.

The proposed settlement was for a total of $494 million, $265 million on account of the claim (an additional $47 million having been paid previously) and $182 million under Public Law 85-804. Ingalls anticipated a loss on the contracts of

$647 million. After subtracting the $265 million, the remaining $382 million was split between the Navy and Ingalls. Ingalls would absorb a projected $200 million loss and the Navy would pay the remaining $182 million under Public Law 85-804. As with Electric Boat, after Congressional hearings, neither house adopted a resolution disapproving the settlement and it became effective on 18 October 1978. The final Comptroller General Report, dated 4 April 1984, indicates that while Ingalls made no combined profit on the LHA and DD 963 contracts, they recouped the projected loss.

TRIMMING THE DEFENSE BUDGET THROUGH END-STRENGTHS

Senator **Wilson**. Admiral Metcalf, let me ask you a rather basic question which I asked the Secretary at an earlier meeting. We really did not get an opportunity to pursue it. You are aware, I think, that we are under great pressure to try to trim the deficit, and there are a number of people who are suggesting that defense is the answer.

We are all aware that defense will have to make its contribution, but it would clearly be irresponsible to salvage defense spending. Nonetheless, we are confronted with a number of unpleasant alternatives, and I would go further and even say that taken by themselves, they could be viewed as imprudent alternatives, but some are more imprudent than others.

The past 2 years have seen the Congress respond to the authorization requests by granting far less than was requested, and the cuts below what was requested have occurred in operations and maintenance and to a degree in manpower.

We have all on this committee, I think, commended the Secretary for the aggressive program, and I am particularly heartened by this morning's report of Secretary Pyatt. You are to be congratulated on the savings that you reported in pursuit of the 600-ship Navy, but a question that has arisen is, if we decide that the least imprudent of the alternatives is to have to cut back on requests for increases in end strength, what does that do in the sense of our approach to the 600-ship Navy?

Admiral **Metcalf**. Well, clearly, it takes qualified sailors to operate our ships, just as clearly today we have probably the most qualified sailors aboard our ships, officers and enlisted, we have had for a number of years.

The end strength problem, of course, is a two-edged prong in that obviously we would not have enough people to do it. We would have to take them out of the shore establishment or some other places and thus weaken those areas, but there are other aspects of this program, and that has to do with retention, the Navy being a very highly technical force.

We have got to retain our people, and so it is not only an issue of end strength in the personnel aspects that the Congress is addressing, but there are a number of initiatives this year, that will enhance our ability to retain people, and our ability to retain people is directly related to readiness. From my perspective as head of Navy surface warfare which includes some of our more highly technical ships, it is very important that we retain those people.

And so the question you are asking is really on the one hand our ability to bring the numbers in, and on the other it is our ability to retain the numbers. If we could retain people, it obviously drives down the numbers that we must bring in. It obviously is more cost-effective to retain trained sailors than to train new people.

So, I think that as you go through these very difficult days ahead, the issue is two-pronged. It is one of end strength, and it is one of retention. Retention helps the end strength problem.

Senator **Wilson**. Mr. Chairman, if I could just pursue this, what I am really asking, Admiral, is, if there is a certain end strength required commensurate with the increase in the number of ships in the Navy's inventory, I wonder if you are not contemplating the time when you are going to have to make the decision as to whether you are going to tie up ships and almost be faced with putting new ships in mothballs for lack of personnel, and I think that there is a crunch that is foreseeable, and I just hope that this is being foreseen, and that there is some plan that is being devised.

Admiral **Metcalf**. It is a foreseeable plan. We have dealt with these sorts of issues during my 34 years in the Navy, and we will have to address them when they come. There are ways of cross-decking and that sort of thing if push comes to shove.

We do not want to do any of these things. They are all very objectionable. But right now we do not have any plans for tying ships up. We just have to face that when the time comes.

Senator **Cohen** [presiding]. Senator Wilson is saying the time is now. It is here. You have the Senate Armed Services Committee making a recommendation to Senator Goldwater that we could go no further than 4 percent. I suspect the House Armed Services Committee might have a different figure, but certainly the House of Representatives will come in lower than that, and you are in all likelihood going to end up closer to the 3-percent level than 4 percent or the 6.2 percent that the administration wants.

And the question is, how realistic is this particular shipbuilding projection if you are projecting an 8-percent annual growth rate, when in fact all the political indicators, not economic indicators, the political indicators, would suggest that we are not going to see growth rates like that in the foreseeable future. That is what the question is.

What are we going to do in terms of either altering our shipbuilding program or cutting back on our manpower requirements? I think that is in essence that Senator Wilson is asking. You are saying, we will face that when we come to that, and what we are saying is, we are here.

Admiral **Metcalf**. Well, of course, the problem is that it takes a long time to build a ship. We have a maritime strategy, and we are building a 600-ship Navy to match that maritime strategy, and so to link too closely that very difficult problem of undermanning with the ship construction issue is a very hard thing to do. We will have to manage it. There is no doubt about it. And it will be a very difficult issue to manage, but the Navy will manage that problem.

Senator **Wilson**. Admiral, is not the real answer, though, that because of the difference in the time that it takes to train manpower and the time that it takes to construct ships, that we would be ill advised to cut back on the construction program when we may have to operate these ships in some cases with skeleton crews?

Admiral **Metcalf**. That may be the case. I think that is what I am getting at.

Senator **Wilson**. That is what I am getting at.

Admiral **Metcalf**. We may have to reduce the number of people. We may have to put them in cadre status, and we have had that problem before, as you are aware, and we will work our way around it to keep the ships ready. Of course, when you reduce the number of people on the ships, then you are going to reduce the readiness of those ships. That is what we are facing.

Senator WILSON. That is precisely what we have been doing consciously for the past couple of years, at least since I have been in the Senate. It is, I think, a preferable, wiser alternative than ceasing the kind of procurement program that you cannot telescope. If you lose time, you never get it back.

Admiral METCALF. You can bring certain types of manpower on much quicker. That is the importance of retention, why I really got off into the retention issue. As far as the Navy is concerned we can help a great deal by maintaining retention of our people, qualified people.

Senator WILSON. Thank you, Mr. Chairman.

Senator COHEN. Thank you, Senator Wilson.

NATIONAL SHIPBUILDING INDUSTRIAL BASE ACT OF 1985

Secretary Pyatt, let me come to a more direct point that I think would be of interest to both Senator Wilson and myself. Last week there was a bill introduced in the Senate called the National Shipbuilding Industrial Base Act of 1985. Are you familiar with that?

Mr. PYATT. Is this the bill that Senator Symms introduced?

Senator COHEN. Yes.

Mr. PYATT. Yes, I am generally familiar with its provisions.

Senator COHEN. It is designed to increase shipbuilding on the west coast, presumably to spread the industrial base around even further. What effect is that going to have on the Navy's plan for the DDG-51?

Mr. PYATT. Well, it is not now law.

Senator COHEN. I understand. Does it have any impact in terms of your planning for the 51?

Mr. PYATT. Well, as Secretary Lehman mentioned in his statement, we believe there are enough DDG-51 ships in the plan to justify and maintain three shipbuilding firms, subject to the will of the Congress in appropriating those ships.

Senator COHEN. I was referring specifically to—in this newsletter, Defense Week, there was a quote that said, "In a stunning reversal, the Navy has quietly decided to build the 51 class guided missile destroyers on the west coast." I understand that is no change in policy. Has that been a change in policy?

Mr. PYATT. If it was a change in policy, it is news to me, because we clearly designed the DDG-51 program from the beginning to be a multiyard endeavor, and we did not know who would wind up bidding for the ships. We now know, and we expect that there will be enough work to provide useful and gainful employment for three of those firms. We are going to maintain a tight competitive environment and work on prices.

Senator COHEN. So it is still going to be out on the basis of price rather than geographical distribution?

Mr. PYATT. Yes, sir.

Senator COHEN. You still plan to go ahead with the contract award in mid-March?

Mr. PYATT. As soon as we can get it prepared to where we are satisfied that it is a good contract, we will go ahead.

Senator COHEN. Well, that is not what I asked you. Do you still plan to go forward in mid-March, as was the announced plan over the last several months?

Mr. PYATT. Mid-March can go into early April or mid-April, but we want to get it out.

Senator COHEN. What is the delay at this time. Secretary Pyatt? Is there any delay, any reason you know why the decision should be delayed?

Mr. PYATT. We want to get it over with as quickly as we can. If you are trying to nail me down to the 15th of March, you will not succeed.

Senator COHEN. I just want to know when a decision is going to be made, or whether or not there are other factors being included to delay the decision beyond a particular date.

Mr. PYATT. No, sir.

Senator COHEN. Why would I try to nail you down on March 15? The March 15 date was not the one that has always been pointed to.

Mr. PYATT. We are at the tail end of a competition on a contract, and we need to be sure that we have it done the way we wanted it done and the way we promised, and sometimes it runs over a little bit.

Senator COHEN. As I understand it, all the bid figures are in. Is that correct?

Mr. PYATT. The proposals have been submitted and are being evaluated by the source selection advisory council and our people.

Senator COHEN. Is it fair to say, you do not intend to go back out for further bidding? Admiral Fowler?

Admiral FOWLER. Senator, I have not yet met with my people to get the results. I expect to do that on Wednesday of this week, and I can not make a public statement or any statement at this time as to whether we will or will not go back out for best and finals.

The selection is not delayed. It is proceeding right on schedule. In a large contract like this, however, a glitch can come up at any moment that will delay things, and the less we say about it publicly, the better our chances of completing on schedule.

Senator COHEN. Well, I am getting concerned about the glitches that appear to be emanating from the White House right now, but more about that later. I guess we probably covered the issue, Secretary Pyatt, about the 8-percent growth rate. I do not know how you are going escape that.

Mr. PYATT. Each year we go through the process of putting together a 5-year plan that seems to be somewhat less than the one before it. This is an issue that we will have to cope with in putting together this year's program. We are firmly committed to maintaining the 600-ship Navy that is about to be achieved, and we will have to work that problem.

One of the things that we have done in the DDG and also in the submarine is to put firm cost celings on the ships so that when people put requirements in and designs in, they know what they are going for. We quite understand that problem.

Senator COHEN. We have talked a lot about the amount of money being saved through competition, but my understanding is that much of the Government-furnished equipment is procured on a sole source basis. As a matter of fact, the major components for Aegis, the *Los Angeles* class submarine, the GFE [government furnished equipment], are procured on a sole-source basis. I am talking specifically the Aegis radar and submarine propulsion equipment. Is that correct?

Mr. PYATT. Well, the Aegis radar system to date has been procured on a sole-source basis. We are now out seeking suppliers to provide the various pieces competitively. You will see our endeavors in competition expand into GFE.

I think your overall assessment is right. We have done less there than in shipbuilding. One that we recently completed was the vertical launch system. It turned out to be a case of, rather than increased cost which some folks argued it would be, dramatic savings, proving again that competition works.

Senator COHEN. What would be the percentage of the total price of the Aegis cruiser or *Los Angeles* class submarine if it was procured on a sole-source basis?

Admiral Thunman, can you take that?

Admiral THUNMAN. I will have to take that for the record.

Mr. PYATT. Rather than speculate, I would like to submit that for the record if I may.

Senator COHEN. All right. And perhaps you could translate that into the overall Navy shipbuilding program in terms of how much is competitive and how much is sole source with respect to GFE included.

[The information follows:]

If, for example, the CG 47 cruiser was procured sole source today, we would expect a 20 to 25 percent cost increase.

Senator COHEN. Admiral Metcalf, we just talked briefly about the DDG-51. One of the criticisms of the design has been the lack of the helicopter hangar. And I would like to clarify this ship's capabilities with regard to helicopters.

First, how does the 51 flight deck compare with that of the *Spruance* class destroyer in size and capability?

Admiral METCALF. I would have to get the exact measurements for you for the record, but basically you cannot operate that helicopter off that deck. What we want to do, of course, is to use the other assets in the battle force or the SAG or wherever it happens to be. And the DDG-51 is fully capable of operating the LAMPS III helicopter.

It can't maintain it, it can't hangar it, it can't do the sorts of things that you have to do with aircraft to maintain them at sea, but as far as using it as a weapon in conjunction with the ship's own weapons systems, it is fully capable.

[The information follows:]

DDG-51 FLIGHT DECK

The DDG-51 flight deck is basically a square area with 48 foot side dimensions giving a total of 2,270 square feet. For purpose of comparison the DD-963 flight deck is 2,130 square feet.

Senator COHEN. Does it have a RAST system for rough weather launch and recovery?

Admiral METCALF. No; it doesn't, sir.

Admiral FOWLER. Senator, may I add just a short comment? That is a decision that we made several years ago. It has been reviewed within the Navy over and over again. It is one of the typical trade-off decisions. We would really like to have more capability on the ship, but we have to constantly look at the cost of the ship. There are going to be, hopefully, many other platforms in a battle group. We decided some time ago that that is a capability that we could drop out with prudent risk.

And, you know, if you would like to say gee, we would like to have that capability, the answer is clearly yes from the Navy's point of view. Could we afford it? We didn't think so. And we thought it was a prudent risk, so it is one of those areas where we made an affordability decision not to have the capability.

Mr. PYATT. It is really a microcosm of the work in the 8-percent growth issue. You have to do it every time you turn around.

Senator COHEN. Three percent growth issue.

Mr. PYATT. You mentioned 8 percent being too much, and you have to do it every time you turn around, and you wind up with some unpopular things.

Admiral METCALF. It's also a war-fighting issue. I have operated on destroyers and frigates in which we operated helicopters that came from other platforms, and the Navy has found it can do it very well, and so that is how we would operate that ship.

We are also looking at another 200 tons if we put that in there, and then you are going to lose—you know, it is a serious question, whether you want to trade off that speed and range for that LAMPS capability when you have it extant elsewhere in the battle force.

Senator COHEN. Can the 51 rearm the LAMPS III?

Admiral METCALF. I don't believe it can, sir, the way it is presently configured.

Senator COHEN. I would like to come back to the LAMPS helicopters because the Congress has been under the misapprehension that 24 was a more efficient production rate for the LAMPS III than 18.

Would you want to comment on that, Admiral Martin?

Admiral MARTIN. Mr. Chairman, I think it is a question of having a total balanced procurement program. There is no question that we would like to have larger numbers. But looking in the totality, if you take larger numbers there, you are going to have to reduce somewhere else in terms of affordability. And this was a conscious decision.

We also have indications that six aircraft will be bought by the Spanish, which would bring it up to a 24-procurement buy.

Senator COHEN. Let me ask you just a personal question, a professional question. Would it be better if we just gave the Navy a lump sum on helicopters and let you make the decision as to how you would apportion it? Would you rather have that?

Admiral MARTIN. I would have to take that one for the record, sir, and examine such a proposal.

Senator COHEN. I thought I would just ask you.

Admiral MARTIN. Also, I would off the top of my head, question the legalities of such a procurement proposal; however, I have never really given that a lot of thought.

Senator **Cohen**. I have never asked my colleagues that question either, but I thought it might be appropriate to try that out on you as to whether or not the Navy might make a different decision in this than the Congress.

Could I also ask you, ask you, Admiral Martin, about the Penguin air-to-surface missile? Are we committed to putting the Penguin on the LAMPS helicopters?

Admiral **Martin**. I would like to defer that to Admiral Metcalf who is program sponsor for the Penguin.

Admiral **Metcalf**. I have been involved with the recent examination of the Penguin program, and quite frankly we have been examining it within OPNAV for the very reason of affordability. We are looking for the best way to use it, so we are looking at its use not only from a helicopter; we are also looking at putting it on a strike aircraft, the ASW aircraft, and the like.

And so what we are really looking at is an examination of the Penguin program and that weapons system on naval aircraft.

Senator **Cohen**. Well, Congress last year added money for R&D to put it on the LAMPS III.

Admiral **Metcalf**. And we have been spending the money looking at the LAMPS III. Yes, sir.

Senator **Cohen**. Are you committed to going forward with it?

Admiral **Metcalf**. Well, I would say that looking at the problems associated with funding for it, my personal judgment is yes, that we will put it on, on some kind of aircraft. But really my office is working that problem very hard right now at what is the best way to look at it.

If you want to look at it in probabilistic terms, I think we are coming up with a favorable conclusion that that is what we ought to do. We are trying to examine this whole Penguin issue in a very tight fiscal climate to see what is the best way to use it. And that is what is evolving in this examination.

Senator **Cohen**. I have no further questions. But, Admiral Thunman, I don't want to have you ignored over here on the right.

We requested last year that the Navy come up with a recommendation about diesel submarine construction for our allies, ships to be constructed here, to be sold to our allies, and that the Navy or Department of Defense was going to come up with a report by October 1, 1984

To date, we have received no report. And I was wondering when, if ever, you think you would be supplying that.

Admiral **Thunman**. The Chief of Naval Materiel has completed a report. We have forwarded it to the Department of Defense, and I think it should be coming to you shortly.

Senator **Cohen**. So we should look to the Secretary of Defense for the report?

Admiral **Thunman**. Yes, sir, the Navy has sent it recently to the Department of Defense. We regret the delay, but it is now in the Department of Defense.

Senator **Cohen**. All right.

Senator Stennis, did you have some questions you would like to ask?

Senator **Stennis**. Yes, thank you, Mr. Chairman.

Gentlemen, in earlier years, I was chairman of a subcommittee on this major committee (the Military Construction Subcommittee) and that included much in addition to buildings. I wasn't much of a traveler, but I went around some to these installations.

This is not a delayed compliment, but I found a lot of evidence of planned and executed work by the Navy in which they were sticking to the quality idea and also trying to hold down the cost.

You never got any publicity on it, and when you did, not much. And now we are over into another era where you and everybody else get more publicity, if anything. That all happened, of course, after I was no longer chairman of that subcommittee.

I get some satisfaction on things I know you have done over the years. You have made less noise and get more for the dollar, I believe, than any other services. I say that with respect to all of them.

I have an illustration of this, based on something that happened a few years ago, and I now understand that you are planning something along the lines.

So my question is as follows: I understand now that you have a new proposal for procuring three LHD-1 ships. One ship would be fully funded this year, and long lead funds for two additional ships would allow for a multiship procurement.

Now, do you think that this approach is going to save you money? And, if so, what are your estimates on how much money would be saved?

Mr. PYATT. Our estimates on that run about $800 million over single appropriations for those three ships. And that is achieved by completing the three ships almost 3 years faster.

Senator STENNIS. That was based on what?

Mr. PYATT. Based on completing the three ships almost 3 years faster, 33 months; being able to order all of the contractor-furnished equipment that goes in the three ships to get an efficient buy; and then the shipyard being able to plan its work and execute it more efficiently on a three-ship program.

I think it is a substantial program.

Senator STENNIS. Money, you know, has gotten to be such a common thing, we speak very liberally in terms of figures. Does this represent a hard figure and conclusion reached by competent men in or out of uniform, or both? And does the Navy and do you gentlemen back this estimate and believe in it, and have a purpose to put it over within the limits of those figures that you have given?

How do you feel about it?

Mr. PYATT. I will answer for myself and then ask Admiral Fowler to answer for himself. We have put a lot of time and careful work into determining and estimating these figures. One can never be sure until you have a contract down and the whole deal negotiated with everybody.

But this incorporates, from my understanding—and I have played a personal role in developing it—our best estimates of what will occur and how to put the program together and run it efficiently.

I will ask Admiral Fowler to respond for himself.

Senator **Stennis**. And you are speaking now directly for the civilian side of this proposition?

Mr. **Pyatt**. Yes, sir.

Senator **Stennis**. You are personally familiar with it? Did you take part in making these estimates?

Mr. **Pyatt**. I spent a lot of time on this program trying to put it together myself.

Senator **Stennis**. You personally spent time?

Mr. **Pyatt**. Yes, sir.

Senator **Stennis**. And this is your hard, firm opinion and you stand on it?

Mr. **Pyatt**. Yes, sir.

Senator **Stennis**. All right. Thank you very much. It's things like that you can act on with more confidence.

Admiral **Fowler**. Senator, the same people, who I believe are the most competent people around for estimating the cost of shipbuilding, put this estimate together. The same people that put all our other estimates together.

We have done a lot of hard work on this one. I know I am talking to the teacher, but will recall that a few years ago, we submitted a multiship procurement on the aircraft carriers. We estimated substantial savings there. The General Accounting Office did an audit of those numbers and reported to the Congress that they believed those estimates were achievable, and we awarded those contracts. You authorized and funded those ships. We awarded those contracts, and our estimates today is that we expect to get the kind of savings that we predicted then.

Based on that piece of evidence and what has been a track record of pretty good cost estimating in recent years on shipbuilding, I believe that we have a credible story here, and that it will stand up to any test of audit or analysis that anybody cares to make.

We recognize that in Washington, anytime we come forward with something that is new and different like this, it is going to get a lot of scrutiny. We are prepared for that scrutiny. We think we can stand up to it.

Senator **Stennis**. You said you get a lot of scrutiny?

Admiral **Fowler**. A lot of scrutiny and a lot of criticism, and we think we can stand up to that. We believe these numbers.

Senator **Stennis**. So you put your reputation at stake based on what you said, as I understand you—on these figures here, as estimates of course, but firm estimates that you believe in?

Admiral **Fowler**. Yes, sir. That's the most valuable thing I think I have.

Senator **Stennis**. Well, I remember about the carriers I remember when someone mentioned it to me the first time, and I hope I haven't grown too skeptical, but I have been around a long time and seen a lot of things failing to bring the fruit that was expected, and I didn't take it too seriously about saving that much money. But we went along with the Navy on that. How much money did you save according to your calculations on this?

Admiral **Fowler**. On the carriers? I don't have those numbers right handy, but I think our savings were $740——

Mr. **Pyatt**. We predicted $740 million, roughly, and our achievement was about $1.1 billion.

Admiral **Fowler**. We haven't quite finished the job yet, but that's what we are presently estimating.

Senator **Stennis**. That is real money in my book.

Admiral **Fowler**. I must hasten to add, Senator, an estimate is only an estimate. If the national economy takes a very drastic turn again, or some unforeseen other situations come up, we may never achieve those, but we really believe at this point, if things don't change drastically in the country, that we can make these kind of savings.

Senator **Stennis**. Well, I don't even remember where those ships were built, but I do remember the incident and it came out well. And it seems to me like you ought to ring a bell on that and let the people know. We have new members coming in here all the time that haven't heard these stories, and they don't give you enough credit for things that you do.

Well, Mr. Chairman, I have some other questions here, briefly. I believe I have already submitted some for the record when I was here before.

Now, the manpower requirements are something I haven't given special attention to in a great number of years. How many extra men are you now requiring, or have you obtained already, or had the promise of the Congress with reference to these ships? Can you provide us this information on your manpower situation. That is such a big part of the cost of your overall program. Do you have anything, or are you prepared in this regard on the additional manpower, both uniform and civilian?

Admiral **Metcalf**. As I answered Senator Wilson, this year's program has about 15,000 increase, and it reflects increases that we have requested over the years. There is one thing that is going on within the design of our ships, which is a conscious effort to reduce the numbers of people that are required to man our new and modern ships. I mean that is a very conscious decision we are making. And we are doing it with technological aids and we are reducing the numbers of people on our ships.

Senator **Stennis**. Have you already testified on this point in response to Senator Wilson at this hearing?

Admiral **Metcalf**. I just mentioned it a moment ago. Senator Wilson mentioned it, but it certainly bears repeating, sir, because you are on a very key issue, manpower to man our ships.

Senator **Stennis**. Well, we are back under. I thought I could see or partially understand the big problem in the future was manpower and developing into such a high percent of the Navy dollar, so to speak.

You have got to have the A-1. I just have the impression and I am purely a layman, but having a little knowledge on naval affairs—I get the impression that you have given a good accounting of your money and I think that is an assurance to the American people. I emphasize that I think you ought to tell them more about it and put the emphasis where it belongs.

Mr. Chairman, I have these questions to be inserted in the record.

Thank you very much, gentlemen. Thank you very much, Mr. Chairman.

Senator **Cohen**. Thank you, Senator Stennis. Senator Wilson?

Senator WILSON. Thank you very much, Mr. Chairman.

Secretary Pyatt and Admiral Fowler, I am advised that if the presently planned service life extension program for *Kitty Hawk, Ranger,* and *Constellation* goes forward as planned, it will mean that there will be available for deployment from the west coast for the period 1990 to 1992, only two carriers.

Is that correct?

Mr. PYATT. I would have to ask Admiral Martin.

Admiral MARTIN. I do not have those figures presently, but I will submit them for the record, Senator Wilson.

[The information follows:]

WEST COAST CARRIER DEPLOYMENT AVAILABILITY

From 1989 through 1993 there will be at least five deployable carriers on the west coast, except for one three-month period in mid-1990 and one three-month period in early 1992 when there will be four deployable CV's. If necessary, schedule adjustments could be made to have five deployable CV's at all times.

Senator WILSON. The reason I asked, I think that if that is true, that would seem really a dangerously low level if we are to maintain the proper readiness posture for AirPac. And I am wondering why it is that it is necessary to actually SLEP those west coast carriers because it is my understanding that the advanced maintenance procedures that are being used by AirPac are such that the CV-61, 62, and 63 really do not require more than an overhaul to bring them into the same condition as the east coast carriers without the SLEP.

If I am not mistaken, there is an AirPac study that indicates that.

Admiral FOWLER. Senator, the Pacific Fleet has been doing a good job of keeping the material condition and the readiness of our aircraft carriers up, so they are in pretty good shape.

I do not believe your information about two carriers is correct, I don't deal on a day-to-day basis with how many carriers are going to be in the Pacific that far in the future. I can't tell you with an absolute certainty what the right number is.

There are some plans for shifting carriers from coast to coast in connection with our other efforts. I am absolutely certain the U.S. Navy is not going to let the Pacific Fleet be below its fair share to meet its commitments in terms of carriers.

As we looked at the long-haul future, for instance, one factor that comes to mind is that the *Ranger* will be 35 years old when it enters the SLEP program. All our history so far shows that ships that age need something like the SLEP.

We are continuing to review how much and what mix of work is necessary, if we do repairs and restoration versus modernization work. From *Saratoga* to *Forrestal* to *Independence,* you will find that there has been a greater sophistication in the modernization package while keeping the total amount of work about the same. Dollars have gone up, but that has gone up as a result of escalating price.

As I look at the *Kitty Hawk,* she does need a SLEP. We have her planned to be inducted in the SLEP program in 1987.

Senator WILSON. Well, let me ask this. I am prepared to receive your assurance that if the movement of the three carriers to Philadelphia for the SLEP would result in leaving only two, that there would be a shift from the Atlantic to the Pacific, so that we didn't have this imbalance.

But it seems to me there is another imbalance that needs to be corrected. And that has to do with a statement made by Secretary Lehman at a hearing earlier this year before the full committee.

In response to a question, he stated that he felt that it was essential to maintain the repair and overhaul capability, that industrial capability on the west coast, even at a cost differential, by which he meant even if it cost more than at yards on the gulf or the east coast.

My concern is that we have only one carrier facility, that at Bremerton, the Puget Sound yard on the west coast that is capable of doing this kind of carrier overhaul work. And if they do not do this work on these carriers, if I am correctly advised, it is going to be something like 5 years between drinks.

I anticipate that unless there is some other work going into that yard, we are going to see the same kind of thing that has happened elsewhere, and that is that the kind of skills that are required simply drift away and they go back to Idaho or wherever else they came from.

And I would quote a statement from Secretary Pyatt this morning, with which I agree:

> You have said with respect to shipbuilding, that competition works, works to save the taxpayers money. It works to strengthen this nation's shipbuilding industry by providing the shipyards the incentive to improve production facilities and techniques, to incorporate cost saving technology and methods.

That was said with respect to shipbuilding.

My question is: How are we going to assure that we can give that same incentive to the west coast yards, specifically in this case Bremerton, without giving them work? How can we do that?

That does not square with Secretary Lehman's statement.

Admiral **Fowler**. We deal with this issue daily. We do have a second yard capable of overhauling carriers on the west coast, the Long Beach Naval Shipyard.

Now, it is true that they have not done a carrier overhaul recently, so their skills have dropped off somewhat. We do try to compensate for that from time to time. I am concerned about Puget Sound dropping off on its capability. I am also concerned about the high cost.

We deal with all those issues. I don't have simple, pat answers, nor am I going to tell you that we are going to assign this ship or that ship to any particular shipyard. I think it would be unwise to do that.

We are dealing with the same kind of issues that you have to deal with. There is an awful lot of money in the shipbuilding and ship repair program. We try to best serve the interests of the country and the Navy by keeping the readiness up, and our ability to fight a sustained and prompt combat at sea, and, at the same time, keep the readiness of the industrial base to deal with war if we had to. It is a tough, tough question.

I don't see anybody willing to spend an extra buck just for mobilization potential.

We are looking at how to bring the cost of defense down in the hardest kind of way. That seems to be the No. 1 priority, but we are not failing to look at the other considerations that are involved.

Senator **Wilson**. Well, Mr. Chairman, I would like—not now because I am sensitive to the committee's time—but I would like to pursue with Admiral Fowler this question with respect to the need for a full SLEP as opposed to overhaul, particularly in light of what I understand is the AirPac study indicating that overhaul would suffice.

If that is true, then there has got to be an enormous cost differential and an enormous timing differential. So I think in light of the statement the admiral has made, for which I feel great sympathy, I think we really need to pursue that.

Admiral **Fowler**. It is true, Senator, that CINCPAC Fleet did have a study and make that statement a year or so ago. It is also true that it has been very carefully looked at, and there are others who disagree with that position.

Senator **Wilson**. I would like to look at it further.

Senator **Cohen**. Thank you, Senator Wilson.

Could I turn to Aegis a little bit? Senator Weicker, by way of example, wrote a piece, I think last week or the week before, on ways in which we can reduce the Defense budget. He suggested a number of things, including dropping the number of Aegis ships down from three to two.

Secretary Pyatt, what would be the impact of attempting to cut that back from three to two, in your judgment, in the shipbuilding account?

Mr. **Pyatt**. Well, I think it would rapidly convert a very competitive creative program into nothing. It would be impossible to get competition and sustain a production base, because you either have to go one and one, with two shipyards involved, or zero and two. Somebody gets left out.

Aegis is clearly the backbone of our surface combatants for the future and any modernization of the Navy would have to be built around Aegis, so I think it is short-term folly.

Admiral Metcalf may have an additional comment.

Admiral **Metcalf**. Well, I can only look at it from the perspective of an additional comment with respect to that ship, that it is a very vital war-fighting asset that we need, and we should get them as soon as we can. I wish we had them all right now.

MINE WARFARE

Senator **Cohen**. Admiral, if you were given an additional $110 million for mine warfare, how would you spend the money?

Admiral **Metcalf**. I think I would have to take that one for the record, because we would have to take a look at it. You have obviously got something in mind.

[The information follows:]

Mine Warfare

If an additional $110 million was made available for me to spend on mine warfare I would purchase 245 Captor weapons ($99.6 million), additional Captor spare parts ($6.2 million) and increase the number of Captor mods purchased by $4.2 million.

Senator COHEN. I was just asking an honest question about if we gave you $110 million on mine warfare, what would you do with the money?

Admiral METCALF. We would clearly examine our programs and put it into a place where we thought we had the most leverage, which would give us the best bang for the buck.

Senator COHEN. I notice that the budget did not include any funds for the Captor this time around.

Admiral METCALF. The Captor is a difficult issue. It uses the Mark-46 torpedo, and the Mark-46 torpedo we are going to put into a 3-year, multiyear program. But actually, the real answer in Captor and all our mine efforts is, we believe, we have a balanced program relative to what we have in mines, where the threat is and how we use them, and the dollars, of course, available to put into that sort of a program.

Senator COHEN. But there is no compelling reason why you would use this $110 million, this hypothetical $110 million for getting 300 Captor mines?

Admiral METCALF. Well, clearly, if Congress appropriated $110 million for Captor mines, we would certainly——

Senator COHEN. I am asking what you would do with the money. In terms of your priorities, is that something that you would think would be valid?

Admiral METCALF. I certainly hold Captor very high in my personal evaluation of our mine warfare. You are asking my personal opinion. My personal opinion is that we would use, we could use more Captor mines, because as Second Fleet Commander, I developed tactics for the use of those mines which would allow us to operate in areas and sanitize the battle force.

But I think I must go back to my initial statement. If I had to sit down and look at it, I would look over the whole spectrum because mine warfare is tight, no matter how you look at it. They are all tight.

And, offhand, to say where I would spend it—all I am saying is, it would be very high on my personal priority list.

Senator COHEN. Secretary Pyatt, we are going to be looking further at the whole issue of readiness and sustainability, but I would like to know why some of the Navy weapons are listed in other procurement instead of weapons procurement.

I am thinking specifically of the Navy group sonobuoys and the naval gun ammunition. Why are they listed in an OPN account?

Mr. PYATT. You have asked a historical question for which I have no answer. But it was some evolution in the derivation of the weapons account and leaving other ordnance—there are a lot of ordnance items in the OPN line.

Mr. GARANT. Very simply, the weapons procurement account was created in the sixties. It used to be procurement of aircraft and missiles, and those two accounts were broken out and a determination was made to create a weapons procurement for missiles and then smart weapons or power weapons, any that has its own guidance and powers in the weapons account.

Now, free-fall weapons that are dumb bombs, ship gun ammunition, stayed in the other procurement account where they had always been.

Senator COHEN. Admiral Martin, I think you talked about the P-3 aircraft. You made a request, I think, for nine this fiscal year. And 2 years ago we had a conference with the House and you got five.

What would be the impact if that were to occur again, to have the procurement reduced from nine to five? What is the impact in terms of dollars and cents, unit costs?

Admiral MARTIN. Of course, if we reduce the number to five, the unit cost would go up. The requirement for the P-3's exists. We put a request in for nine because this again would get us the best balanced program we could achieve.

Now, I don't have the exact figures on how much the costs would go up if we procured five, vis-a-vis nine. But I can provide for the record——

Senator COHEN. Would you get that for the record, and also supply what you project in terms of the Navy's requirement in future years for the P-3?

Admiral MARTIN. Yes, sir. I would be delighted to.

[The information follows:]

The FY-86 P-3 congressional submit is for nine P-3C aircraft and $496.4M. Unit flyaway cost is $36.8M. If the program were reduced to five aircraft in FY-86, the total funding required would be $355.2M with a unit flyaway cost of $43.0M.

The Navy is attempting to balance the operational requirements of all aircraft within the funding constraints imposed. These requirements can be met by buying P-3 aircraft at the rate of nine a year.

Senator COHEN. Could I ask, Admiral Metcalf, what use are we making of SWATH [small water area twin hull] technology? I think you mentioned before regarding the minesweeper *Hunter*, mine sweeper-hunters that are getting into competition with that, but there are some new technologies that are being developed as a result of that: The surface of hulls, glass-reinforced plastic construction, and apparently there are some applications these can be adapted to.

The Japanese, as I understand it, are building a 3,000-ton SWATH ship which is being used for commercial purposes, high-speed ferrys and so forth. What are we doing with SWATH technology?

Admiral METCALF. Well, we are examining in an R&D sense the SWATH technology. It is a candidate for our future ships. We are looking into what the Japanese are doing, how those ships are going to fare. That is a 3,000-ton ship. I understand they have a 5,000-ton ship in design, and so we are looking very carefully at what we would do with it.

The surface effect ship, the hydrofoils, and the SWATH ship are candidates for replacement of the DDG's in later years, and other of our ships. So the key to SWATH is the mission it will be on when you want to go into high latitudes.

I think an immediate thing that comes to mind is a ship that will tow an ASW tail. We have the TAGOS ships, and we may find that we cannot get them up far enough north, and we may have to build a SWATH ship that could pull a tail in very bad weather. But that is conjecture.

We are looking at all sorts of ships. We have an active program within the Navy to not only look at SWATH, but to look at all kinds of advanced technology.

AEGIS

Senator **Cohen**. Admiral Fowler, can you tell me how much it costs for one Aegis system for the CG-47? If you don't have it, you can supply it for the record.

Admiral **Fowler**. I'd like to submit it for the record. Yes, sir.

[The information follows:]

CG-47 AEGIS WEAPON SYSTEM COST

This budget submission includes $563.3 million for three CG-47 Aegis Weapon Systems; or approximately $187.8 million each.

Senator **Cohen**. My understanding is, the Navy is going to move to competition for the Aegis system itself. And I think that you have indicated in your testimony that it is going to be 1990 before there is competition for full integration of an Aegis cruiser.

The question is, why does it take until 1990?

Admiral **Fowler**. We have already started to break out parts of it so it is not really taking until 1990. Aegis is an awfully complex system to break out into its various parts, develop suppliers, and make sure that they are properly qualified, and make sure that we are not making any mistakes. It just takes that long.

Senator **Cohen**. That is a reasonable time schedule as far as you are concerned, to hit that 1990 date?

Admiral **Fowler**. We have used a rather tight time schedule.

Senator **Cohen**. Secretary Pyatt, one final question. What are you doing in the way of trying to stimulate new manufacturing methods such as modular construction techniques, and so forth? What is the Navy doing with respect to investigating these options to reduce the overall costs of ships?

Mr. **Pyatt**. I think the main thing we are doing is trying to make as much work competitive as we can. I think that is the most powerful force for pulling these technologies into industry. There is very little the Navy can do to a given firm to say you go out and select this kind of welding machine. We don't want to do that. But I think the more work we make competitive, the more it brings in the creativity that lives in these industrial enterprises, and that will do it on its own.

Senator **Cohen**. Gentlemen, thank you very much. Those are all the questions I have. What others I do have here, I will submit for the record.

Senator **Stennis**. Mr. Chairman, may I ask a question, too?

Gentlemen, going back to this method of planning and building ships, in particular, the CG-47 Aegis cruiser. I remember now Admiral Metcalf made a great speech down there when they dedicated the *Ticonderoga,* and I remember one particular sentence that you spoke. Referring to that ship, you said that we have here today the finest battleship—or term equal to that—in the world, the greatest battleship in the world. And that impressed me greatly.

How has it turned out? That was several years ago. You were the speaker, weren't you?

Admiral **Metcalf**. No; I was there, sir. I was kind of way down on the totem pole, but I remember that remark being made.

Senator **Stennis**. Well, I heard that statement made in some way by you that day. If this is not in your line——

Admiral **Metcalf**. No; this is in my line.

Senator **Stennis**. Please continue.

Admiral **Metcalf**. Well, the *Ticonderoga* has turned out to be an enormously capable ship. It is going to revolutionize the way we defend battle forces at sea.

When I go around and give speeches to my young surface warfare officers, I tell them that they are on the forefront of technology and the *Ticonderoga* and the Aegis system is "star wars at sea." It really is something that we don't understand completely. We have got something which is in command and control of battle forces in complex situations and that we are just beginning now to understand how to use it. It is extraordinary. The ship has been highly successful. It has met all of its operational commitments.

The *Yorktown*, the second ship, has met its commitments. And we are very, very pleased with it. And every day I find new things which challenge the mind, challenge the intellect, challenge the way we are going to fight at sea. It is really an extraordinary weapons system.

Ed would like to add something to that.

Admiral **Martin**. Senator Stennis, I employed the *Ticonderoga* off the coast of Lebanon a year and a half ago, and I will say that the *Ticonderoga* system, the SPY I [radar] system on that ship, the entire ship is the single greatest force multiplier I have seen at sea in my naval career—most impressive and most capable, and we are just scratching the surface on how to use it.

Senator **Stennis**. Well, I am glad you made that statement. I remember right afterward that there were some little stories out that claimed it wasn't any good. And all that disappeared.

Admiral **Martin**. Well, sir, any system that complicated and that sophisticated is going to have a certain amount of growing pains. I think the manner in which the Navy handled those growing pains was very commendable.

Senator **Stennis**. All right, gentlemen. I still have the questions written down here. Mr. Chairman, if I could submit these for the record, they can look at the questions. If they wish to add to their answers, they may do so.

Senator **Cohen**. Thank you very much, Senator Stennis. I want to echo what you said before, and that is that the Navy, more than any other service that I am aware of, has done more to reduce costs through competition, and it doesn't get enough credit for the efforts that it has made. So we want to commend you for the job that you have done.

Senator **Stennis**. I thank you for your contribution. I think you are correct.

Would you attempt to give now a figure of what you save by using this system to which you referred a few minutes ago on the other ship? Do you have the figures available now?

Mr. **Pyatt**. Well, basically, our efforts, if I have the question right, our efforts in competition have resulted in $2.5 billion savings, compared to the President's request for the same ships.

Senator **Stennis**. Those are savings since 1983?

Mr. **Pyatt**. That is all ships purchased from the period 1983 through 1985.

Senator **Stennis**. That is $2.5 billion.

Mr. **Pyatt**. Yes, sir.

Senator **Stennis**. Well, that is still a lot of money in my book.

Senator **Cohen**. The prepared statement of Admiral Cooper, Director, Fiscal Management Division, Office of the Chief of Naval Operations; and the statement by Capt. John C. Rice, Jr., national president of the Naval Reserve Association will be inserted in the hearing record at this point.

[The prepared statements follow:]

PREPARED STATEMENT OF REAR ADM. DANIEL L. COOPER, U.S. NAVY, DIRECTOR FISCAL MANAGEMENT DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Mr. Chairman and members of the Committee, I appreciate the opportunity to present the fiscal year 1986 budget request for the Other Procurement, Navy (OPN) appropriation.

The Other Procurement, Navy appropriation is essentially the same in program content and structure as presented last year. The FY 1986 OPN budget request is $6,601.2 million. There are approximately 350 equipment programs in this appropriation which finances the procurement of weapons and equipment other that aircraft, missiles, ships, and torpedoes. These procurements support programs designed to improve the active fleet and shore establishment by the introduction of equipments which expand or maintain existing capabilities. Equipments that are funded range from the latest electronic sensors and weapons systems which update our naval forces to trucks, medical equipment and spare parts; from simple shop equipment to sophisticated electronics and ADP systems. Other items funded include air and ship launched ammunition to meet combat requirements and training readiness; nuclear cores and components for nuclear powered surface ships and submarines; and training equipment in support of shipboard operational equipment.

This request of $6,601.2 million continues to emphasize modernization, sustainability, and improvement of fleet readiness and is summarized in eight Budget Activities (Table 1).

TABLE 1.—OTHER PROCUREMENT, NAVY: BUDGET ACTIVITIES

[In millions of dollars]

	Fiscal year—		
	1985	1986	1987
Total request	5,341.6	6,601.2	7,374.5
Ship support equipment	761.8	923.0	1,164.1
Communications and electronics equipment	1,710.2	2,154.0	2,552.2
Aviation support equipment	972.6	1,184.0	1,138.3
Ordnance support equipment	1,103.4	1,396.5	1,358.3
Civil engineering support equipment	232.5	221.6	366.5
Supply support equipment	89.7	62.5	144.7
Personnel and command support equipment	471.4	379.8	385.0
Spares and repair parts		279.8	265.4

TABLE 2.—OTHER PROCUREMENT, NAVY: BUDGET ACTIVITIES GROWTH

[In millions of dollars]

	Fiscal year 1985	Change	Fiscal year 1986
Total request	5,341.6	+1,259.6	6,601.2
Ship support equipment	761.8	+161.2	923.0

TABLE 2.—OTHER PROCUREMENT, NAVY: BUDGET ACTIVITIES GROWTH—Continued

[In millions of dollars]

	Fiscal year 1985	Change	Fiscal year 1986
Communications and electronics equipment	1,710.2	+443.8	2,154.0
Aviation support equipment	972.6	+211.4	1,184.0
Ordnance support equipment	1,103.4	+293.1	1,396.5
Civil engineering support equipment	232.5	−10.9	221.6
Supply support equipment	89.7	−27.2	62.5
Personnel and command support equipment	471.4	−91.6	379.8
Spares and repair parts		+279.8	279.8

This request is $1,259.6 million over the approved FY 1985 program (Table 2), an increase of about 18.7%. (When this request is compared to the original FY 1985 President's Budget request of $5,953.9 milion, the increase of $647.3 million would equate to only 6.6% real growth.)

The OPN appropriation is structured on a commodity basis as opposed to a programmatic basis and the budget is officially submitted in Budget activities as depicted in Table 1. The focus of today's presentation will be on those portions of the Other Procurement, Navy appropriation under the cognizance of the Subcommittee on Seapower and Force Projection. A total of $4,743.8 million has been requested for equipments included under the purview of this subcommittee in these budget activities. These equipments comprise 71.9 percent of the total value of the OPN appropriation request. The remaining items in the OPN request are under the cognizance of other subcommittees (Table 3).

TABLE 3.—OTHER PROCUREMENT, NAVY-BREAKDOWN OF FY 1986 BUDGET REQUEST BY COGNIZANT SASC SUBCOMMITTEE BUDGET ACTIVITIES

[In millions of dollars]

Program by budget activities	Total FY 1986 budget request (100%)	Subcommittee on Seapower and Force Projection (71.9%)	Other Subcommittees (28.1%)
Total request	6,601.2	4,743.8	1,857.4
1. Ship support equipment	923.0	851.1	71.9
2. Communications and electronics equipment	2,154.0	1,764.1	389.9
3. Aviation support equipment	1,184.0	341.7	842.3
4. Ordnance support equipment	1,396.5	1,019.3	377.2
5. Civil engineering support equipment	221.6	108.0	113.6
6. Supply support equipment	62.5	0	62.5
7. Personnel and command support equipment	379.8	379.8	0
8. Spares and repair parts	279.8	279.8	0

Before I discuss the specific programs included in our FY 1986 budget request, I would like to explain the department's very thorough budgetary process. Each year, the Department of the Navy conducts a detailed budget review on all appropriations. During the summer of 1984, hearings were held on each of the 358 OPN line items. Among the criteria considered during this review were:

a. *Unit price.* Do unit prices reflect approved escalation indices, consider quantity changes, or pass the test of reasonableness?

b. *Production approval.* Will production approval be granted in time to permit procurement in the year(s) for which OPN funding is being requested?

c. *Delivery, installation, and overhaul schedules.* Do contract deliveries, installation schedules, and ship overhaul schedules coincide with the requested procurements?

d. *Contract award dates.* Can any of the requested funds be deferred until the following year with no impact on installation schedules?

e. *Prior execution performance.* Have prior year contracts been awarded on time or is there a backlog of orders? Is the outlay history reasonable?

f. *POM decision impacts.* Has the outyear program been changed or delayed in the Program Objective Memorandum (POM) process for follow-on years?

g. *Program priorities.* Have new higher priority programs forced reductions to OPN programs and where does any specific item fall within those priorities?

The FY 1986 OPN request is $1.35 billion or 17% less than the amount reflected last year in the FY 1986 column of the FY 1985 President's Budget, due in large measure to this budget review.

In addition to the funding adjustments made during the budget review, two significant changes were made to the OPN budget. First, all OPN funding for spares and repair parts was consolidated in a single budget activity (BA-8), which will be discussed later. Second, the budget as submitted reflects the OSD decision to eliminate the three thousand dollar threshold for procurement funding. As a result, the OPN appropriation includes all procurement funding for centrally managed items regardless of unit cost. Those non-centrally managed procurements, such as Operating Forces Support Equipment (camels, fenders, office equipment, kitchen equipment, etc.), will be funded in the Operations and Maintenance accounts. This change will result in the fleets, as well as all field activities, having only one type of funding, with the ability to make "program priority" and "buy versus lease" decisions on the least-cost basis vice being constrained by the type of available funding, a constraint which was neither efficient nor economical.

An important point I would like to stress is the impact of recent congressional action on the OPN appropriation. In the last few years, the authorization and appropriation processes have become quite constraining, as each budget activity began to be authorized and appropriated separately. To compound this situation, in FY 1985 undistributed reductions were applied by budget activity, with the result being essentially seven separate appropriations. While line items each have a $10 million reprograming threshold, any increase to the authorized and appropriated total of a budget activity requires a prior approval reprograming request which uses transfer authority and requires extensive time to accomplish. In order to optimize the use of OPN funds, one or all of the following actions are requested:

a. Authorize and appropriate OPN as a single entity, vice by separate budget activities. The $10 million line item threshold will still preclude significant adjustments without the prior approval of Congress.

b. Apply any necessary non-specific (undistributed) reductions to the entire appropriation vice to individual budget activities. This will minimize program reductions in one budget activity while assets exist in another budget activity.

c. Include language to permit undistributed reductions to be identified throughout the first year of execution, rather than prior to the submission of the next year's budget as is now the case. This will permit the reductions to be applied in such areas as cost savings and program slips instead of forcing undesirable program reductions required to be identified prior to submission of the following year's President's Budget.

None of these actions would reduce congressional control of the programs in this appropriation. On the other hand, all of them would allow execution of these congressionally-approved programs in a timely manner which maximizes the return for each available dollar.

A large portion of the equipments procured in OPN, particularly Budget Activities 1, 2 and 4, are related to the Fleet Modernization Program. During regular ship overhauls or shorter availability periods, it is necessary to replace many of the components of a ship's basic hull, mechanical, and electrical systems in order to eliminate obsolescent equipments and to introduce equipments which are more efficient, capable, and easier to maintain. Examples of such equipments are pumps, generators, air compressors, propellers, steam plant components, and nuclear reactor components. Similarly, as the technology of modern warfare grows more sophisticated during the ship's life, it is necessary to upgrade many of the weapons, sensors, communications systems, and tactical data processing suites on the ship.

Since most of the aforementioned equipments are installed during regular ship overhauls, it is not necessary to procure all of the equipments in a single year. Rather, we phase the procurements in such a way that equipments are delivered shortly before each individual ship overhaul period begins. This means that most equipment procurement programs extend over a period of about five years, the length of time it usually takes for all of the ships covered to enter overhaul. The total quantity to be procured of any given equipment is calculated by ascertaining which ship classes are to receive the equipment and counting the number of ships in each class and the number of equipments per ship. Additional equipments are procured to satisfy shore-based training requirements, configuration control requirements, and depot repair requirements.atheater

TABLE 4.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITY 1 [1]

[In millions of dollars]

	Fiscal year—		
	1985	1986	1987
Ship support equipment	707.4	851.1	1,042.5
Reactor plant equipment	386.2	391.2	546.9
Other ships support equipment	318.5	459.9	495.2
Spares and repair parts	2.8		

[1] Those portions under the cognizance of the SASC Seapower and Force Projection Subcommittee.

The first Budget Activity request, Ship Support Equipment, includes $851.1 million under the purview of this subcommittee, $143.7 million more than FY 1985 (Table 4). The funding requested will procure equipments to modernize the Hull, Mechanical and Electrical (H,M&E) capabilities of our current Navy ships, procure nuclear power units and components for nuclear powered ships, and buy Other Shipboard Equipment required to maintain and modernize the Fleet.

The FY 1986 request for Reactor Plant Equipment is $391.2 million, an increase of $4.9 million. The major items procured in this category are nuclear reactor cores required for refueling of nuclear powered ships. The FY 1986 procurement request for cores is $163.4 million; also included in this category is $227.8 million for replacement reactor plant components and equipment required for the continued safe operation of the Navy's nuclear reactors. Replacement core procurement requests are based on long term Navy needs and have been approved for several years on the basis of being the most economical, efficient method of procuring replacement fuel for nuclear powered ships. Further, procurement in accordance with these stabilized plans minimizes the risk of non-availability of cores for emergency replacement while maintaining a viable, two-vendor base for reactor cores.

The remaining funds requested in Budget Activity 1 ($459.9 million) will provide for procurement of various shipboard equipments to support improvement and modernization programs or as part of a planned maintenance replacement program. $36.8 million is requested for the Electrically Suspended Gyro Navigator (ESGN), which will replace and modernize the current inertial navigation systems on SSN-637 and SSN-688 class submarines. Sealift Support Equipment, for which FY 1986 funding in the amount of $59.0 million is requested, provides for the procurement to equipment to enhance the capability of merchant ships performing Naval auxiliary roles to resupply shuttle ships or underway replenishment ships. Among the key items procured in this line are sea sheds and flat racks. The Naval Special Warfare Equipment ($30.8 million in FY 1986) will furnish our Sea-Air-Land (SEAL) forces and Underwater Demolition Teams (UDT) with necessary equipments to fulfill assigned missions. A new line, New Ships Training Equipment, reflects $20.2 million for procurement of necessary equipment to establish a CG-47/DD-963 Class Marine Gas Turbine Propulsion In-service Engineering and Training Facility at Great Lakes, Illinois.

TABLE 5.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITY 2 [1]

[In million of dollars]

	Fiscal year—		
	1985	1986	1987
Communications and electronics equipment	1,540.2	1,764.1	2,181.6
Ship radars	170.3	163.6	215.6
Ship sonars	228.9	201.9	318.5
ASW electronics equipment	285.5	397.3	531.3
Reconnaissance and electronic warfare	173.2	262.9	374.7

TABLE 5.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITY 2 [1]—Continued

[In million of dollars]

	Fiscal year—		
	1985	1986	1987
Other electronic equipment	211.0	331.6	335.7
Communications equipment	342.0	406.8	405.8
Spares and repair parts	129.3		

[1] Those portions under the cognizance of the SASC Seapower and Force Projection Subcommittee.

Budget Activity 2, Communications and Electronics Equipment, is the largest budget activity in the OPN appropriation (Table 5). The FY 1986 budget request for Communications and Electronics Equipment under this subcommittee's jurisdiction is $1,764.1 million, an increase of $223.9 million over the FY 1985 budget. The rationale for this increase will be addressed during the discussion of each of the major areas included in the budget request.

The $163.6 million requested for Ship Radars will provide for the procurement of equipment to modernize the Navy's surface search radars, two-dimensional air search radars, and three-dimensional air search radars. The significant line items included in this category are the AN/SPS-48 three-dimensional air search radar ($67.5 million), the AN/SPS-49 two-dimensional air search radar ($14.1 million), the AN-SYS-2 Integrated Automatic Detection and Tracking System ($13.1 million), the MK-23 Target Acquisition System ($19.9 million), and the AN/SPS-40 two-dimensional air search radar ($14.8 million).

A major segment of this funding is tied to the New Threat Upgrade combat system (NTU). Procurement of this NTU system, an anti-air warfare program to counter the latest missile threats, was initiated in FY 1983 and is continued in FY 1986 with the procurement of five combat systems. The New Threat Upgrade Combat System consists of three principal components; (1) a new SM-2(ER) Block II missile, funded in the Weapons Procurement, Navy appropriation, (2) engagement system modifications, funded in OPN Budget Activity 4, and (3) significant improvements to the AN-SPS-48 and AN/SPS-49 air search radars, including the addition of the AN/SYS-2 to integrate the outputs of these two radars, all funded in this Budget Activity. The modification to the AN/SPS-48 radar provides higher elevation angle coverage, increase average power output, and provides frequency and pattern flexibility to avoid spot jamming while detecting targets through heavy clutter. The modification to the AN/SPS-49 radar provides enhanced electronic counter-counter measures (ECCM) processing and automatic target detection (ATD) capability. The AN/SYS-2 correlates contract data from the AN/SPS-48 and AN/SPS-49 and provides a single target output to the ship's command and decision system automatically. Installation of the New Threat Upgrade Combat System is scheduled for Terrier missile ships of the CG-16 and CG-26 classes, as well as CGN-9, CGN-25, CGN-35 and DDG-42 (22 Terrier ships). It is also scheduled for installation on Tartar missile ships of the CGN-36, CGN-38 and DDG-993 classes (10 Tartar ships).

The FY 1986 budget request for Ship Sonars is $201.9 million, a decrease of $27.0 million from the FY 1985 budget. $30.9 million is requested to continue procurement of the AN/SQS-53B surface ship sonar impovement program, which upgrades the maintainability of this sonar, reduces manning requirements, and allows integration of the AN/SQS-53 sonar with other sonar systems, such as the Tactical Towed Array Sonar (TACTAS), using standard modules. $101.0 million is requested for the AN/BQQ-5 submarine sonar to continue the procurement of modification kits to upgrade these sonars to the AN/BQQ-5C Expanded DIFAR configuration and to continue production of the TBX array. AN/BQQ-5C modification kits have been in production since FY 1981 and provide a significant impovement of the acoustic sensors on our tactical submarines. The TBX array provides improved capability over the TB-16 array in detection, classification, tracking, and localization. Finally, $40.3 million is requested for replacement sonar switches and transducers for both surface ship and submarine sonars. These switches and transducers are considered to be significant fleet readiness items and must be available to replace defective units during scheduled ship overhauls.

The $397.3 million requested for Anti-Submarine Warfare (ASW) Electronics Equipment provides for the procurement of a diverse group of ASW-related equipments, and represents an increase of $111.8 million over the FY 1985 request. $85.8 million is requested for the continued modernization of both the underwater segment and the shore processing segment of our SOSUS system. Last year, we procured 10 AN/SQR-19 Tactical Towed Array Sonar (TACTAS) systems for a total of

$101.2 million. This year, we are procuring 16 systems for a total of $146.5 million. The AN/SQR-19 will be backfitted into the Navy's DD-963, FFG-7, DDG-993, and CG-47 class ships where it will serve as the primary long-range, passive acoustic sensor to "trigger" the LAMPS MK III system. $41.7 million is requested for follow-on procurement of new towed arrays and modification kits for the AN/SQR-18 Tactical Towed Array Sonar (TACTAS) system which is installed on most FF-1052 class ships. Other items requested in the ASW Electronics category include improvements to the AN/AQR-17 Acoustic Processor ($15.2 million), shore equipment in support of SURTASS ($19.4 million), and modernization of our shore-based ASW Operations Centers ($30.0 million). Finally, $31.5 million is requested for follow-on procurement of the Carrier ASW Module. This system supports embarked carrier ASW airborne weapon systems by providing real time and post mission analysis of acoustic signals.

The $262.9 million requested for Reconnaissance and Electronic Warfare Equipment provide for the procurement of anti-ship missile defense (ASDM) electronic warfare (EW) systems such as the AN/SLQ-17 and the AN/SLQ-32, the procurement of cover and deception systems, and the procurement of tactical intelligence systems such as Outboard and the Naval Intelligence Processing Systems (NIPS). In addition, the FY 1986 program includes $25.1 million for procurement of Combat DF, which provides the Electronic Warfare Signals and Direction Finding System with the capability to detect, locate, and identify targets at long range and to feed this information into the ships tactical data system.

The $331.6 million requested for Other Electronics Equipment represents an increase of $120.6 million over the FY 1985 request. A large portion of this funding ($130.9 million) is for continued modernization of the Navy Tactical Data System (NTDS) on frigates, cruisers, and aircraft carriers. NTDS is a vital system in major warships which permits rapid integration of ship sensor information, analysis and display of tactical information, and designation of weapon systems to force threats. Initial procurement funding for the Tactical Flag Command Center (TFCC) is also requested in FY 1986 ($20.8 million). This system is the Flag Commander's afloat interface with the Navy Command and Control System (NCCS).

The $406.8 million requested for Communications Equipment includes funding for general shipboard communications ($59.3 million), unique submarine communications ($18.2 million), satellite communications terminals ($69.1 million), shore communications ($83.3 million), cryptographic devices ($156.1 million), and cryptologic equipment ($20.8 million). In the shipboard and shore communications areas, funds are being requested to continue the procurement of radios to replace obsolescent UHF and VHF equipment currently in the Fleet. Within the $69.1 million requested for satellite communications terminals, $13.4 million is budgeted for continued procurement of Demand Assigned Multiple Access (DAMA) systems. The DAMA system provides a five to one increase in channel capacity on the LEASAT satellite system, thereby enabling LEASAT to have a capability comparable to FLTSATCOM. The $156.1 million budgeted for crytographic devices provides for the continuing support of the Navy and Marine Crops communications security program. Although funded by Navy, the cryptographic devices are procured through the National Security Agency.

TABLE 6.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITY 3 [1]

[In millions of dollars]

	Fiscal year—		
	1985	1986	1987
Aviation support equipment	430.1	341.7	308.5
Sonobuoys	332.7	273.1	230.9
Aircraft support equipment	97.4	68.6	77.6

[1] Those portions under the cognizance of the SASC Seapower and Force Projection Subcommittee.

A total of $341.7 million is requested for equipment under this subcommittee's purview in Budget Activity 3, Aviation Support Equipment, shown in Table 6. Included within this request is $273.1 million for Sonobuoys, and $68.6 million for Aircraft Support Equipment.

The FY 1986 budget request for $273.1 million for Sonobuoy procurement has been formulated considering the number of ASW carrier air groups and shore based ASW patrol squadrons to be supported, actual and planned peace-time usage for these forces, and the necessary training allowance requirements. User aircraft included the S-3A, P-3, SH-2D, and SH-3 series. The specific sonobuoys to be procured are: the AN/SSQ-36 bathythermograph sonobuoy which provides a vertical water temperature profile; the AN/SSQ-53, a passive directional sonobuoy used during the target localization phase of air ASW missions; the AN/SSQ-57 which obtains acoustic and sound pressure level data and measures ambient noise; the AN/SSQ-62, an active directional sonobuoy; the AN/SSQ-77, a passive directional sonobuoy utilizing a line array of omni-directional hydrophones and a DIFAR element; the AN/SSQ-86, a one-way acoustic communicator sonobuoy which provides the link between ASW aircraft and submerged submarines; and the new Low Cost Sonobuoy, for which initial procurement funding is being provided in FY 1985 from the $50.0 million added by the Congress for general sonobuoy procurement.

The $68.6 million for Aircraft Support Equipment supports a variety of programs. $42.7 million is for the procurement of LAMPS MK III shipboard equipments. Each ship set consists of an AN/SQQ-28(V) electronic sonar signal processing system, and AN/SRQ-4 shipboard terminal data transmission device, and a helicopter landing system (HLS). $23.0 million is budgeted for Airborne mine countermeasures and $2.9 million is requested for Expeditionary Airfields.

TABLE 7.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITY 4 [1]

[In millions of dollars]

	Fiscal year—		
	1985	1986	1987
Ordnance support equipment	825.6	1,019.3	1,014.8
5-inch guided projectile	55.3	104.3	176.6
Ship gun system equipment	42.4	63.6	85.6
Ship missile system equipment	427.5	573.4	442.1
ASW support equipment	92.0	139.1	144.6
Other ordnance support equipment	29.1	30.0	28.7
Other expendable ordnance	81.2	108.9	137.2
Spares and repair parts	98.1		

[1] Those portions under the cognizance of the SASC Seapower and Force Projection Subcommittee

The next Budget Activity is Ordnance Support Equipment for which $1,091.3 million is under this subcommittee's cognizance. This represents an increase of $193.7 million as compared with FY 1985 (Table 7). $104.3 million is requested for initial procurement of 5 Inch Guided Projectile ammunition. With its laser guidance system, this projectile will provide the fleet with a high first shot hit capability previously lacking in surface gunnery systems. $573.4 million is requested for Ship Missile System Equipment which is an increase of $145.9 million over FY 1985. These equipments will be utilized to modernize and increse the shipboard offensive and defensive missile capabilities. These programs include Surface Missile System (SMS) Ordnance Alternations (ORDALTS), Aegis support equipment and Surface/Submarine Tomahawk Support Equipment. The SMS ORDALT program is designed to improve the reliability, performance, and safety of currently deployed missile systems: Terrier, Tartar, and NATO Seasparrow (Point Defense). Significant items included in the FY 1986 request of $218.9 million of Terrier and Tartar are the procurement of Terrier ordnance alternations to improve system reliability and maintainability, as well as two ship sets of SM-2 modifications to the Tartar Missile Systems. SMS ORDALTS also include the procurement of self-defense systems such as NATO Seasparrow ($43.8 million), and associated improvements. The Aegis Support Equipment requst of $61.8 million will procure equipments necessary to support the in-service engineering and fleet training program for *Ticonderoga* (CG-47) class Aegis cruisers. This funding will provide special tooling and test equipment for unique Aegis depot activities, as well as procurement of BGAAWC Auto Gridlock equipment to improve anti-air warfare coordination in the battle groups of the Fleet. In addition to $105.6 million requested for Tomahawk Support Equipment, a new line (Vertical Launch System) has been established to provide visibility to this vital program. $127.4 million is requested in FY 1985 for this purpose.

The ASW Support Equipment request in FY 1986 is $139.1 million, an increase of $47.1 million from FY 1985. The most significant program included in the ASW Support Equipment category is the All Digital Attack Center (MK-177 Fire Control

System) at $60.0 million. The MK-117 is installed aboard SSN-594, SSN-637 and SSN-688 class submarines, providing a modern, high speed digital computing facility with digital driven display. This enables the submarine to conduct advanced target motion analysis, to automatically set the MK-48 torpedo, and to control and display weapon launch. The other major progam in this category is the ASW Control System (MK-116 Fire Control System) at $25.7 million. This program provides surface combatants with an integrated ASW combat system to effectively manage the large numbers of passive and active sonar contacts generated by the introduction of new systems such as TACTAS and LAMPS MK III.

A total of $138.9 million is requested in FY 1986 for Other Ordnance Support Equipment and Other Expendable Ordnance which consists of a variety of other ordnance programs including procurement of Quickstrike mines ($50.5 million) and Fleet Mine Support Equipment ($25.2 million).

TABLE 8.—OTHER PROCUREMENT, NAVY: BREAKDOWN WITHIN BUDGET ACTIVITIES 5, 7, AND 8 [1]

[In millions of dollars]

	Fiscal year—		
	1985	1986	1987
5. Civil engineering support equipment	130.8	108.0	212.9
Fleet hospital support equipment	69.2	27.7	109.3
Amphibious equipment	59.5	73.0	99.1
Fleet moorings	2.1	7.3	4.5
7. Personnel and command support equipment	471.4	379.8	385.0
Training devices	102.7	107.3	135.9
Command support equipment	12.5	92.5	125.4
Computer acquisition program	227.4	176.6	121.6
Productivity programs	13.0	3.4	2.1
Spares and repair parts	2.8		
8. Spares and repair parts	(260.5)	279.8	265.5

[1] Those portions under the cognizance of the SASC Seapower and Force Projection Subcommittee.

The request for Civil Engineering Support Equipment in Budget Activity 5 is $108.0 million, a decrease of $22.8 million as compared with FY 1985 (Table 8). The Fleet Hospital program ($27.7 million) acquires deployable medical systems (field hospitals) which will care for combat casualties from the Fleet and Fleet Marine forces as part of the Navy/Marine Corps continuum of casualty care. The equipment in the fiscal year 1986 Amphibious Equipment line will be used by the Navy Support Elements (Naval Beach Groups) to provide essential logistic support to Marine Corps Air Group Task Forces in advanced base contingency operations. The items being procured are used primarily for transfer of vehicles and dry cargo from ship to shore. The equipment includes such things as non-powered causeway sections, powered causeway sections, an elevated causeway, and side loadable warping tugs. In addition, we are procuring two LASH lift beams which provide commercial LASH ships with the capability to load non-standard size equipment (such as pontoon causeways). LIFT/launch gear for side loading powered and non-powered causeways aboard Navy LSTs, and hose systems to offload liquid cargo are also being procured in this line.

For Budget Activity 7, Personnel and Command Support Equipment, $379.8 million is requested (Table 8). This amount represents a decrease of $91.6 million from the fiscal year 1985 request. Funding of $107.3 million is for replacement and enhancement of training equipment in the surface and subsurface communities. Surface and subsurface training devices provide the necessary maintenance, operator combat team, and refresher training for new combat systems being introduced to the fleet. The procurement agenda for training includes the Perry Class Pierside Combat System Team Trainer which provides all onboard radar, sonar, weapon launched LAMPS equipment on FFG-7 Class ships with simulated threat target data. Surface warfare related maintenance and operator trainers are also included. The 19F series trainers will produce controlled training fires of propane gas in realistic environments. The Submarine Tactical Visual Training System trains personnel in submarine attack centers to integrate visual information with other sensor information to make appropriate critical tactical decisions. The Submarine Combat System Team Trainer aids land based training for combat system attack center teams. These trainers are exemplary of the training support devices dictated by the growing complexity and importance of submarine tacts and strategies. The fiscal year 1986 budget also addresses the class and field instruction training aid requirements for individual military training. The individual training for over 150 officer designations and enlisted ratings places significant burdens on the Navy training community to maintain, and moddify numerous training devices described in the budget. Training and training support devices afford significant savings in team and individual training operations. At the same time, such devices increase our opportunities for enhancing military preparedness.

Funding of $92.5 million is requested for replacement and enhancement of Command Support Equipment. Requested funds provide for procurement of medical equipment required by shore activities and forces afloat, as well as Intelligence Support Equipment. Funding is also requested for Physical Security Equipment ($17.2 million), a new line which consolidates all Navy requirements for physical security ashore and afloat. Areas covered in this line include nuclear weapons security, arms and ammunition security, waterfront perimeters, communications stations, ships in port, and aviation facilities.

In FY 1986, $176.5 million is requested for procurement under the Navy's Computer Acquisition Program (CAP). This program optimizes the purchase of general purpose nontactical automatic data processing equipment (ADPE) Navy-wide. The CAP is centrally managed within the Navy, thereby avoiding the proliferation and duplication of functional systems, capitalizing on AADP technology, and controlling ADP growth. This consolidated approach has improved first-year ADP obligation performance by over 50% compared with previous multiple ADP lines. Major programs include Shipboard Operational ADPE, which replaces and upgrades nontactical automated support on larger mechanized ships and Marine Air Groups and provides initial automated capability for the alleviation of administrative burdens aboard smaller ships. Funds are included for the Naval Aviation Logistics Command Management Information System (NALCOMIS). NALCOMIS will respond to the aircraft maintenance and material management requirements at air stations, aboard aircraft carriers, amphibious helicopter assault ships and Marine Corps aircraft groups. Funding provides for equipment for the Stock Point Logistics Integrated Communications Environment (SPLICE). This project will maintain the current level of Fleet logistics support in the 1980's. Funding will provide ADP equipment to support the Chief of Naval Personnel with minicomputers, terminals, and printers to provide automated support to the world-wide network of military Pay/Personnel Offices. Also requested is funding to automate the collection, processing and reporting of civilian personnel data from local civilian personnel offices to Navy management and other federal agencies.

Funds of $3.4 million are requested for the productivity programs to purchase, install, and demonstrate improved general purpose equipment, tools, and procedures. The objective of productivity investments is to invest in modern equipment, methods and labor savings devices to reduce labor intensive and costly operations in government.

Beginning with the FY 1986 budget request, all spare parts procurements have been consolidated into a new budget activity (B.A. 8), Spares and Repair Parts. Funds requested for this purpose total $279.8 million, an increase of $19.3 million over the amount appropriated for spares in the separate budget activities in FY 1985.

In summary, many equipments financed by this appropriation support both the Fleet Modernization Program and the shore establishments by which the material and equipment readiness of our fleet units is maintained or improved.

Mr. Chairman, I hope that this statement provides a better understanding of the capability improvements which the Navy hopes to achieve through the execution of the fiscal year 1986 Other Procurement, Navy budget.

PREPARED STATEMENT BY CAPT. JOHN C. RICE, JR., U.S. NAVAL RESERVE, NATIONAL PRESIDENT OF THE NAVAL RESERVE ASSOCIATION

Mr. Chairman, Committee members, we appreciate your allowing the Naval Reserve Association to provide testimony to the Committee for your consideration. The Congress has the attention of the services, particularly in the Navy where the joint effort by Congress and Secretary Lehman have created a new interest in the Naval Reseve. We now ask you to follow through on the movement to furnish the Guard and Reserve with the equipment to give them a current warfighting capability. We are concerned that if the Guard and Reserve units, which assume the additional responsibilities as a result of the expanded or new roles assigned to them, are not supplied with the combat capable equipment to go with the responsibilities, that the effort to make the Reserve Components more responsive to national security requirements will become "dead in the water".

The Naval Reserve Association will continue its efforts to support the modernization and improvement of the capabilities of the Naval Reserve. Total Force planning, programming and budgeting is the key. Secretary John Lehman, Jr. in his Fiscal Year 1986 Posture Statement reaffirmed his policy of "horizontal integrtion" stating:

"Four years ago the Department of the Navy undertook a major reorganization of Reserve Components to move from a vertical to a horizontal relationship with the active forces. That means essentially that the Reserves must provide immediate augmentation to the active force in time of emergency across the entire spectrum of warfare. It means also that, in peacetime, we rely on Selected Reserves to provide real-time fleet support across their mission areas. To execute this common-sense policy, the Reserves must have equipment compatible with the active forces. For instance, instead of providing the Reserves only such equipment as becomes obsolete and is removed from the active force, there must be a spectrum of new and old equipment reflected in the Reserves parallel and in the same proportion as in the active force. We have taken fundamental steps to bring this about.

Modern FF-1052 and FFG-7 Frigates have been transferred to the Naval Reserve Force with a total program of 26 frigates planned by 1990.

The first Reserve squadron has now transitioned to the F/A-18 and another squadron to the F-14A.

Modern A-7E, E-2C, SH-2F, and HH-60 aircraft have been or are being transferred or acquired for Reserve units this year with other fleet aircraft to follow during the current five-year plan.

Squadron augmentation flying units have been established and have been operating successfully with each active duty air wing, providing current-trained aviators and maintenance personnel for immediate augmentation to active duty squadrons.

The Naval Reserve contains several components which only exist in the Reserves: 100 percent of the Navy's U.S.-based logistic airlift squadrons, 100 percent of light attack helicopter squadrons, 100 percent of our combat helicopter search and rescue capability, 100 percent of naval mobile inshore/undersea warfare units—"The Brown Water Navy" structure for combat on inland waterways. Upon mobilization the Reserves provide 99 percent of naval control of shipping, organization manning for merchant ship mobilization and convoy formation for overseas operations; 86 percent of ocean-going mine sweepers; 85 percent of cargo handling battalions vital to port management and loading oprations in a combat theater; 85 percent of Military Sealift Command Militry personnel; 68 percent of Navy Mobile Construction Battalions; the famed Seabees; 66 percent of special boat forces; 34 percent of Naval Intelligence personnel; 35 percent of maritime anti-submarine warfare patrol squadrons; 30 percent of medical support personnel; 22 percent of ASW Helicopter Squadrons needed for fleet and convoy anti-submarine defense efforts; and 14 percent of our tactical sea-based aviation capabilities.

The Marine Corps relies heavily on a fully trained and capable Reserve component to complement its active force. The Marine Corps Division/Wing team (the 4th Marine Division/Aircraft Wing Team) comprises one-fourth of our total Marine Corps combat structure and one-third of total Marine Corps manpower assets. The Reserves provide 40 percent of Marine tanks, 33 percent of heavy artillery, 30 percent of the light attack aircraft, and 33 percent of the anti-aircraft missile capability. It is not often realized how fully integrated our Navy and Marine Corps Reserves are becoming in our active force structure and peacetime operations. Naval Reserve C-9 Transport aircraft made many trips in support of our Marines ashore in Beirut during 1983 and 1984 and provided direct support to our operations in Grenada during the same period.

As another example, the Ready Reserve provided 349 volunteers for three-week tours of duty aboard the battleship *New Jersey* during its 11-month deployment, enabling most of the crew to rotate home for leave.

A most successful new initiative begun in 1983 was the Sea/Air Mariner Program that now provides 10,000 first-term enlistments per year directly into the Naval Reserve. We are beginning a similar program this year for junior officer accessions directly into the Reserves in both the Navy and the Marine Corps."

Secretary of Defense Caspar W. Weinberger in his Annual Report to Congress Fiscal Year 1986 echoed the sentiments of Secretary Lehman when he stated:

"Under the Total Force Policy, the Reserve Components have assumed an increasingly important role in our conventional defense strategy. The creation last year of the position of Assistant Secretary of Defense for Reserve Affairs recognizes the critical role that Reserve Component forces would play in any conventional conflict.

During the past four years, we have operated signficantly the combat capabilities of the Reserve Components of all four Services. We have, for example, improved the equipment, training, and manning of Army and Marine Corps reserve units. Following the "first to fight, first to be equipped" policy, early deploying Army National Guard and Reserve units are receiving modern weapons systems before later-deploying active duty units. In FY 1985, these units are scheduled to receive more than 10,000 new items of equipment costing about $1.4 billion—including 180 M1 tanks, 64 BFVs, and 8,000 modern support vehicles. New Marine Corps equipment includes KC-130T tanker aircraft and M198 howitzers. Guard and Reserve units are also benefiting from the more rigorous training afforded by increased participation in realistic field exercises.

Under the Total Force Policy, the Naval Reserve is continuing its most ambitious expansion since World War II. The Navy's reserve structure is being simultaneously enlarged and modernized, to meet the needs of a 600-ship fleet and to strengthen the contribution of Reserve forces across the entire spectrum of warfare. Overall, the end strength of drilling Reserve units will have grown by 30 percent by FY 1989, and their equipment inventories will have been substantially upgraded. Naval Reserve pilots are now flying the F-14 and the F-4s, and are training in the F/A-18. By the end of FY 1985, we will have transferred 11 modern FF-1052 and FFG-7 frigates to the Naval Reserve Force (NRF), leading to a total of 26 Reserve frigates by the end of the decade. Based aboard these ships will be the SH-2F anti-submarine helicopters of the three Reserve squadrons now being formed. We will depend on the NRF to man almost all of our new MCM-1 and MSH-1 mine countermeasure ships, now under construction. In addition, we are modernizing our 13 Reserve squadrons of P-3 maritime patrol aircraft. By FY 1989, we will have completed upgrades to the AN/AQA-7 acoustic processor systems aboard the older P-3 "A" and "B" models now operated by the Reserves. As a preliminary step in the eventual transition of the Reserves to the modern P-3C aircraft, we have established our first Master Augmentation Unit with two P-3C aircraft. Two more such units are planned in FY 1987-88.

The combat capability of our Reserve fighter forces (Air National Guard and Air Force Reserve) has also continued to improve. We have transferred highly capable F-16 aircraft to Reserve units, and are replacing early model F-4C/Ds with the more capable "E" version of the aircraft. And in FY 1986, we will introduce F-15 air superiority fighters into the Reserve inventory.

In addition to deploying more modern systems with our Reserve forces, we are upgrading the combat capabilities of the aircraft. Enhancements include the equipping of fighters with advanced AIM-9L air-to-air missiles and with low-smoke engines and improved radar-warning receivers. The Forces are receiving modern air-to-air and air-to-ground munitions, along with the advanced training needed to employ these weapons effectively.

Reserve Forces also are being modernized through the transfer of long-range C-141 transport aircraft to the Air Force Reserve and Air National Guard. These transfers expand upon the successful Associate Reserve Program, under which Active and Reserve units are collocated. Modernization of shorter range airlift forces continues as new C-130 aircraft are brought into the air reserve inventory. This force expansion is in keeping with the objective of transferring to the Reserves those missions that are cost-effective and do not decrease the combat capability of the Total Force."

The continued reliance on Reserve forces is reflected in the preceding statements. The Naval Reserve Association fully supports SECDEF, SECNAV and CNO in their efforts to modernize the Naval Reserve.

The current budget request contains some $1.4 billion for Reserve equipment. Traditionally, the Naval Reserve has been allocated a small part of this appropriation and has depended on congressional budget amendments and other funding adjustments to meet minimal modernization goals. A case in point is last year's Department of the Navy procurement program for Reserve Components (including the 4th Marine Aircraft Wing) which totaled $101.0 million including $33.0 million for C-9B procurement. Congress added $68 million for F-14 modernization, $7.5 million for AQA-7 Display Update and $12.0 million for H-60 helicopters. These and other congressional additions contributed significantly to the readiness of the Naval Reserve.

The Naval Reserve Association will address the following issues both in this edition of the NRA News and before Congress:

Anti-Submarine Warfare: TACTAS for NRF Frigates; LAMPS I to support NRF ships and Coast Guard Cutters; P-3C procurement; P-3A/B signal processing improvement.

Reserve Carrier Air Wings.

Combat SAR and HAL squadrons.

ANTI-SUBMARINE WARFARE

That the Soviet submarine threat grows increasingly menacing is a grim fact of life that all defense planners recognize.

Secretary Weinberger in this year's Annual Report to Congress stated:

With respect to the Soviet submarine force,

"Particularly worrisome have been the advances in the Soviet submarine fleet. This massive underseas combat force—at more than 370 boats, by far the world's largest—has improved greatly in quality over the past decade and a half. The 1970s saw the introduction of several new submarine types, including the nuclear-powered Alfa and Victor III and the diesel-electric Tango. Classes introduced during the 1980s have yielded substantial additional improvements across the full range of submarine capabilities. For example, the (Russian) 13,000-ton Oscar, armed with 24 SS-N-19 long-range anti-ship missiles, has significantly increased the scope and magnitude of the threat to our carrier battle groups and other surface forces. Still other new classes now being delivered to the fleet, such as the 9,700-ton Mike and the 7,300-ton Sierra, can be expected to yield further improvements in Soviet submarine capabilities in future years. These include increases in size, which provide more space for weapons, and enhancements in speed and sound quieting, which make the submarine more difficult to detect and engage."

Secretary of the Navy John F. Lehman, Jr., in his Fiscal Year 1986 Military Posture statement eloquently expressed his concern over the Soviet submarine threat when he stated:

"The Soviets are demonstrating every day at sea that we no longer have a passive defensive strategy available to us on the world's oceans. Unlike World War II, we do not have a merchant marine able to sustain losses in a submarine war of attrition. The Soviets today have more than 270 attack submarines, while Hitler very nearly won the Second World War in 1942 with about 60 submarines operational during most of the year.

"The Soviet submarine threat is of particular concern and 1983 and 1984 saw major developments. Not only did we have two incidents of Soviet nuclear attack submarines actually hitting or inadvertently fouling our surface combatants, but we have now seen a developing pattern of regular deployments of nuclear attack submarines close off our principal naval ports. These Soviet nuclear submarines today have made great strides in quieting and overall capability in sensors and weapons. They currently are building three new classes of nuclear attack submarines, the Sierra, Mike, and Akula, and one new class of diesel attack submarine, the Kilo. They are building two distinct classes of ballistic missile submarines, the Typhoon and Delta IV, and have at least one new submarine-launched ballistic missile program, the SS-NX-23.

"While the Soviets have had long-range cruise missiles capable of land attack deployed for more than 20 years, they deployed in 1984 for the first time a longer-range submarine-launched cruise missile comparable to our Tomahawk. While this new nuclear capability does not add to the target coverage threat already existing against U.S. targets in their SLBM force, it does complicate our ability to ensure warning time for attack against our bomber bases. For the last five years the Soviets have averaged a production rate for all submarines of about 10 per year. This rate is expected to continue for the next four years at least."

The following statement of Secretary Weinberger contained in his FY 86 posture further stress the vital role that long-range maritime patrol aircraft must play in neutralizing this Soviet threat:

With respect to our ASW Programs,

"Countering the Soviet submarine threat requires a layered offensive strategy that both maximizes enemy attrition and affords a high level of protection for our naval forces. The best means of neutralizing enemy submarines is to engage them in forward areas and barriers—before they come within range of attacking our forces. For this, we rely primarily on attack submarines and long-range P-3 patrol aircraft supported by undersea surveillance systems. Enemy submarines that escape forward sweeps and penetrate our ASW barriers must contend with a layered defensive screen surrounding our naval task forces and convoys. Within this layered defense system, long-range protection is provided by land- and carrier-based patrol aircraft and by attack submarines operating in a direct-support role. At shorter ranges, protection is provided by information of surface combatants equipped with passive and active sonar systems and by torpedo-armed anti-submarine helicopters."

With respect to the P-3 MPA program,

"P-3 maritime patrol aircraft, when provided information from broad-area surveillance systems on the general location of Soviet submarines, offer our most potent area anti-submarine capability. Fleet exercises have also demonstrated the aircraft's utility as long-range protection forces for carrier battle groups and other naval task forces. Several characteristics of the P-3 system contribute to these capabilities. The aircraft's long-range and high endurance enable it to cover large ocean areas. Its large number of sonobuoys and advanced data-processing systems help pinpoint the location of enemy submarines. And its large payload of ASW. Torpedoes provides the capability to translate submarine detections into submarine kills.

"The FY 1986-90 program continues production of the latest model in the P-3 series, the P-3C. A total of 250 of a planned force of 316 of these aircraft have been authorized through FY 1985. The five-year program adds 42 more—all in the Update III configuration—including nine in FY 1986. To promote program stability and to achieve cost savings, we are requesting funds to start a multi-year procurement program for the 33 aircraft scheduled for authorization during FY 1987-90. Beyond the procurement of new aircraft with improved performance features, we are retrofitting Update III avionics into earlier versions of the P-3C. For the future, we are developing an Update IV version of the P-3C with expanded processing capabilities and a new family of acoustic sensors designed to counter the quieting trend in the Sovet submarine force."

RESERVE MARITIME PATROL (VP) SQUADRONS

The Maritime Patrol Force consists of 37 squadrons each containing nine (9) P-3 aircraft. Twenty-four (24) of these squadrons are active navy and thirteen (13) are reserve.

The active Navy squadrons are equipped with P-3B and P-3C aircraft ranging in configuration from the most current production model, the P-3C Update Three, to the early non-updated P-3C and last-production P-3Bs.

The Reserve VP squadrons ae equipped with the early P-3A and P-3B aircraft. Reserve squadron location and aircraft type are depicted below:

Squadron	Location	FY 86	Note
VP-60	Glenview, IL	P-3B	P-3C, FY 93.
VP-90	do	P-3A	P-3B, FY 92.
VP-62	Jacksonville, FL	P-3B	P-3C, FY 92.
VP-64	Willow Grove, PA	P-3A	
VP-66	do	P-3A	
VP-65	Pt. Mugu, CA	P-3B	
VP-67	Memphis, TN	P-3A	P-3B, FY 89.
VP-68	NAF Wash, MD	P-3B	
VP-69	Whidbey Island, WA	P-3A	
VP-91	Moffett, CA	P-3B	P-3C, FY 91.
VP-92	S. Weymouth, MA	P-3B	
VP-93	Detroit, MI	P-3B	
VP-94	New Orleans, LA	P-3B	

The Reserve VP community represents 35% of the Naval Maritime Patrol Squadrons. Today the most critical issue facing our Maritime Patrol Squadrons is the block obsolescence of the early P-3A and lightweight P-3Bs. These two models represent 43% of our total aircraft and almost 100% of our Reserve Force aircraft. In the early to mid-60s the Navy bought the P-3A and P-3B aircraft at a high rate to replace their force of obsolete SP-2H Neptune aircraft. The aircraft delivered in the 1964-68 time-frame will reach the end of their 28 year fatigue life between 1992 and 1996.

The problem this mass obsolescence causes in terms of force loss and required budgetary outlays has been wildely recognized.

During the FY 85 hearings, VADM Schoultz, the then Deputy Chief of Naval Operations (Air Warfare) was asked:

"What production rate starting in FY 85 would be required so that aircraft could be transferred from the active force to the reserve force to replace the P-3As and lightweight P-3Bs as they reach the end of their service life without incurring a reduction in either the active or reserve force levels?"

Admiral **Shoultz**. "The P-3C procurement rate necessary to provide reserves with sufficient aircraft to replace the aging P-3As and P-3Bs is 22 per year."

In the SASC report 98-500 dated May 31, 1984, the committee stated:

"The administration requested funds in fiscal year 1985 for continued procurement of P-3Cs, SH-60Bs, and SH-2Fs. Funds were also requested for research and development for the S-3B Weapons System Improvement program and the CV ASW Helicopter, as well as procurement and RDT&E for various other Air ASW programs including processors, torpedoes, sonobuoys and other support equipment.

"The committee approved most of the authorization, but made reductions in funding levels for the P-3C, while retaining the requested nine aircraft. The committee increased the procurement for the SH-60B and funded the SH-2F procurement for the Naval Reserve.

"With regard to P-3C aircraft, the committee understands that the number of P-3Cs required to be procured annually to maintain the navy's long-range Maritime Patrol Force structure at its present mix of 24 active and 13 reserve squadrons is much higher than requested. Moreover, the committee notes that without a significant increase in P-3C procurement in the future, the Maritime Patrol Force structure will suffer a severe decline in the 1992-1995 time-frame as about 200 older model P-3A/B aircraft in the active and reserve squadrons reach the end of their 28-year service life.

"The committee is concerned, however, about the Navy's intentions for maintaining and modernizing its active and reserve Maritime Patrol Squadrons. There has been conflicting testimony before Congress about the number of P-3Cs needed to be procured annually, and there have been conflicting studies about Maritime Patrol Force structure requirements. Internal budget deliberations on P-3C procurement have resulted in almost constantly changing annual procurement projections.

"With regard to the SH-60B LAMPS MK-III, the committee is also concerned that the annual procurement, as requested, was below that which is economically sensible, and that the total program requested by the Department may be insufficient to procure the number of helicopters needed to fulfill the surface combatant based air ASW mission.

"Much the same is true for the SH-2F LAMPS MK-I. Questions remain as to how many SH-2F should be procured, and what the mix should be between active and reserve squadrons. Moreover, the direction the program seems to be taking is far from consistent.

"The Navy's Maritime Patrol community is also a prime example of the success of the Total Force policy. In Air ASW, it stands as a clear success story to be emulated by the rest of the Navy. Naval reservists are well integrated into the operations of the active squadrons and make a major contribution to our Navy's abilities to accomplish the long-range ASW patrol mission. Naval reservists flying older P-3A/B aircraft perform their missions well, considering the limitations of the aircraft which they fly, and the committee has supported limited modernization of these platforms to maintain their effectiveness. Last year, for example, the committee authorized TAC/NAVMOD kits for this purpose. The committee believes that this success should be extended to all Air ASW forces, as well.

"Consequently, the Secretary of the Navy is requested to furnish the committee, in conjunction with submission of the Fiscal Year 1986 Defense Budget Request, a comprehensive master plan for modernization and maintenance of the Navy's Air ASW forces, both in the active and reserve components. Such a master plan should include a procurement plan for aircraft needed to satisfy the requirements of both the active and reserve forces, along with a schedule for any service life extension program (SLEP) where appropriate and a modernization plan for those aircraft not being replaced through new procurement. Any planned or contemplated changes in the active and Reserve Maritime Patrol Squadron Force structure should be addressed, along with Navy intentions regarding development of successor aircraft, where applicable. This plan should be comprehensive in that it should also address procurement levels of major supporting weapons and expendable sensors to include torpedoes and sonobuoys."

To date the report has not yet been submitted and since the report itself has been classified, the Naval Reserve Association will never learn its specific content. However, the plentiful supply of unclassified information available has enabled the NRA to conduct its own analysis of current MPA force level aircraft and out-year projections.

U.S. NAVY
MARITIME PATROL AIRCRAFT
TOTAL FORCE REQUIREMENTS

	REQUIRED AIRCRAFT				
1. PRIMARY AIRCRAFT AUTHORIZED (PAA)	ACTIVE		RESERVE		TOTAL
24 SQUADRONS AT 9 A/C PER SQDN	216		–		216
13 SQUADRONS AT 9 A/C PER SQDN	–		117		117
2 ACTIVE FLEET REPLACEMENT SQDNS	40		0		40
3 RESERVE MASTER AUGMENTATION UNITS			9		9
RDT&E AIRCRAFT	17		0		17
TOTAL (PAA)	273	+	126	=	399
2. BACK-UP AIRCRAFT AUTHORIZED (BAA)					
ACTIVE	22				22
RESERVE			17		17
TOTAL AIRCRAFT AUTHORIZED	295	+	143	=	438
3. FORCE ASSURANCE AIRCRAFT	22		–		22
TOTAL AIRCRAFT REQUIRED	317	+	143	=	460

Figure 1

The MPA Total Force requirement is for 460 aircraft as shown in Figure 1. Through the FY 85 Defense Bill, 251 P-3C have been authorized of which 235 have been believed through the end of 1984. Assuming that the 41 P-3B heavyweight aircraft can be economically modified and their service life extended for another 10 to 12 years; and the 12 P-3C to be diverted to the electronic warfare mission are replaced; we still must buy 180 P-3 aircraft to meet our current force requirements.

The NRA has taken the total force requirement as shown in Figure 1, and the current inventory of both the Active and Reserve force and has projected the force composition by year through the year 2000, based on assumed production rate of nine aircraft per year. Our analysis took into account estimated normal peacetime attrition losses; the planned diversion of 12 P-3C aircraft to meet the critical needs of the electronic warfare EP-3 aircraft program; and the use of the older but still usable P-3As to be converted to TP-3A pilot training aircraft for the two training squadrons which would temporarily free up 12 P-3C aircraft. We also assumed for the analysis a service life extension program (SLEP) for the 41 heavyweight P-3Bs, a matter which is currently under study by the Navy. The results of our analysis (Figure 2) shows a decline in the reserve force structure in 1994. To more clearly show the impact we have illustrated that same shortfall on a squadron basis in Figure 3.

MPA FORCE LEVEL PROJECTION

PROCUREMENT RATE: 9 A/C PER YEAR

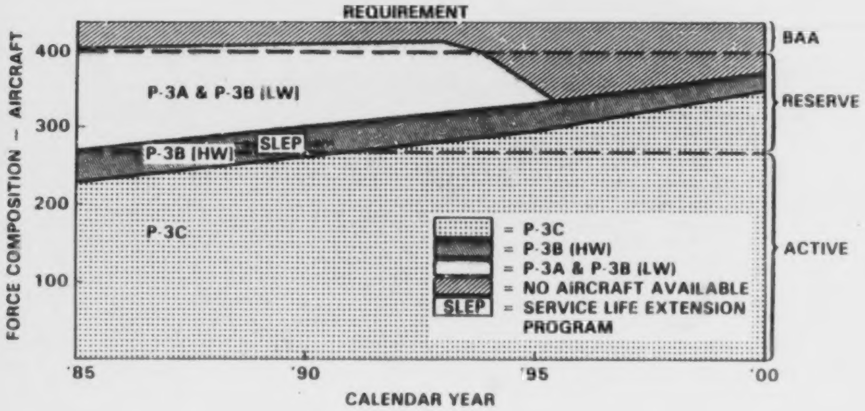


Figure 2

MPA PROJECTED SQUADRON COMPOSITION

PROCUREMENT RATE: 9 A/C PER YEAR

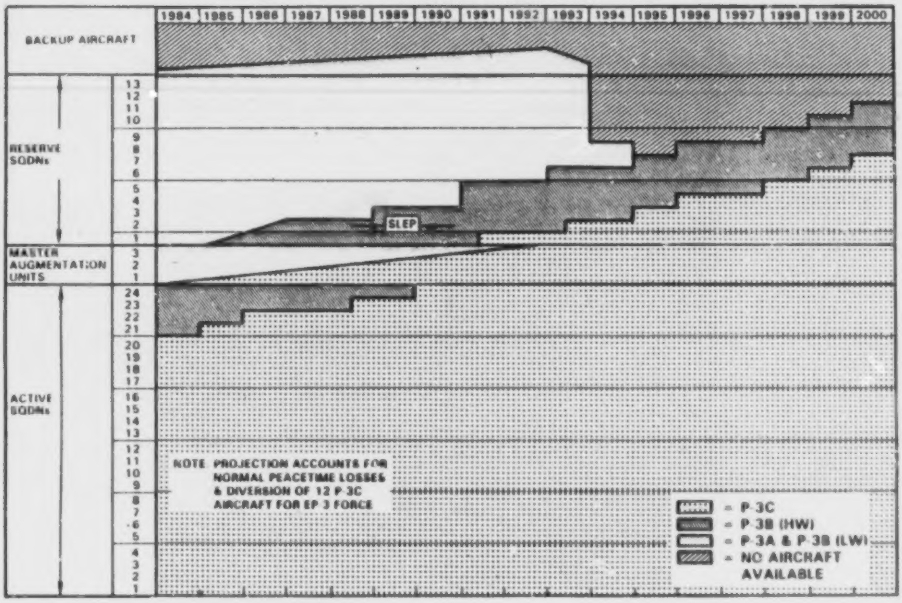


Figure 3

As can be seen, we will no longer have sufficient aircraft for outfitting five squadrons in 1994, and in 1995 we lose still another squadron. I would point out that from now through the year 2000, based on a nine a year production rate, the MPA force will have essentially no aircraft in the backup (pipeline) category which is cause for alarm if conflicts at sea develop. The NRA wishes to highlight this particular aspect of the production program for two reasons; first to show that it introduces risk in the ability of the Reserves to meet their operational commitments in a wartime scenario, and secondly, to show that even though every available asset is going to the squadrons, there will still be a significant shortfall which will result in the loss of reserve squadrons.

Accordingly, the NRA strongly recommends increasing P-3C production to 12 aircraft per year and to place the FY 87-90 procurement under a multi-year contract to achieve the 12 to 15% cost savings as proposed by the contractor for such a program.

MPA FORCE LEVEL PROJECTIONS

PROCUREMENT RATE: 12 A/C PER YEAR

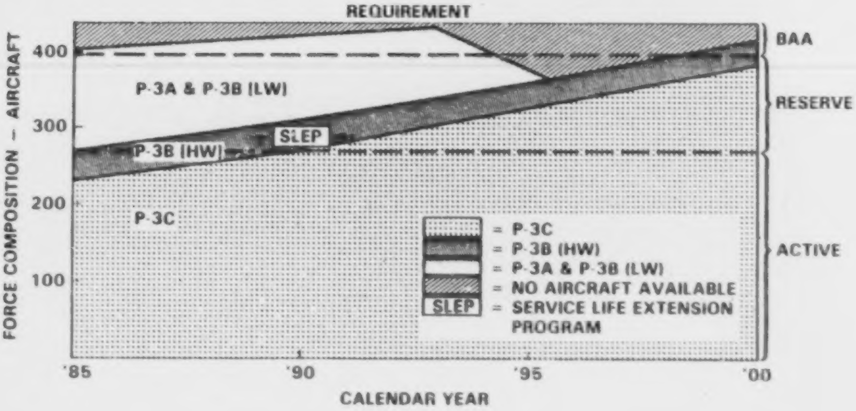


Figure 4

MPA PROJECTED SQUADRON COMPOSITION

PROCUREMENT RATE: 12 A/C PER YEAR

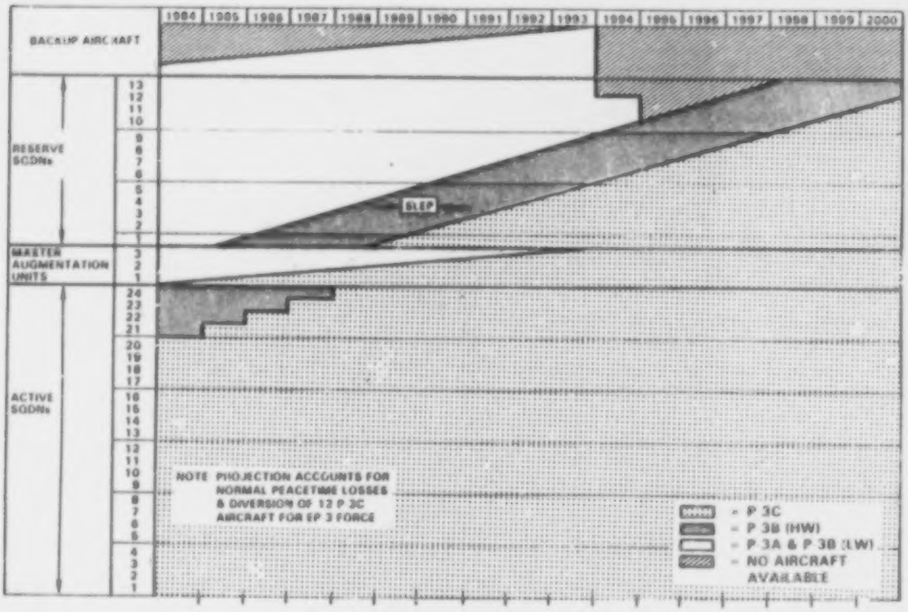


Figure 5

Increasing the buy from 9 to 12 aircraft per year will substantially reduce the shortfall as shown on Figure 4 and the resultant impact on squadron strength (Figure 5). We fully recognize that realistic budgetary constraints make the true need of 20-22 aircraft per year impractical at this time, but the 12 per year rate, in our opinion, is not only fiscally responsible but is affordable. We recommend an increase of $100-105 million to the FY 86 budget to procure three additional P-3 aircraft, and request that they be assigned to our Naval Air Reserve force in order to achieve horizontal integration into our reserve force concurrent with the active force.

Even this acquisition profile will not provide an all P-3C force in reserve MPA squadrons until after the year 2000. Hence an equally important issue, that is the modernization/SLEP program for the P-3A/B aircraft must also be addressed now. This update and modernization effort must not only include the basic airframe and engine, but also must address the avionic update necessary to insure effectiveness against the Soviet submarine threat of the 90s and provide a measure of compatibility and reasonable interface with upgraded fleet detection systems.

More detail about this initiative is provided in the P-3A/B AQA-7 Display Update section which follows.

P-3A/B AQA-7 (V10-12) UPDATE

The previous section developed the rationale supporting a 12 P-3C per year acquisition plan in order to partially alleviate the block obsolescence of the Reserve VP Force in the 90s. As has been previously demonstrated, twenty (20+) plus P-3C procurement per year is required to achieve an all P-3C force and avoid all service life extension programs (SLEP) for the current P-3A/B aircraft.

Since the fiscal realities indicate such a procurement profile is not feasible, the Naval Reserve Association proposes a service life extension and acoustic modernization program designed for Reserve P-3A/B aircraft which will enable:

Reserve Force levels to be maintained in the 90s.

Reserve P-3A/B aircraft to meet the Soviet submarine threat expected in that decade.

Reserve P-3A/B aircraft to maintain an interoperability and common acoustic display format with update fleet P-3 aircraft.

The P-3A/B aircraft in the Reserve VP squadrons are undergoing their final scheduled avionic upgrading with the installation of the TAC/NAVMOD and improvement of the baseline AQA-7 (V1-2) acoustic processor to the AQA-7 (V10-12) model. These modifications were introduced in the fleet in the 70s in the case of the TAC/NAVMOD and the early 80s for the AQA-7 (V10-12) in order to meet the threat of the then new Soviet submarine technology. No further P-3A/B avionic improvement is planned.

The Naval Reserve Association has recognized this serious operational shortfall in those P-3A/B aircraft destined to be assigned to the Reserve P-3 squadrons throughout the 90s and in some cases beyond the year 2000. Consequently, in the FY 85 budget deliberations the NRA supported a Congressional initiative that provided $7.5 million for the development of an updated display for the AQA-7 (V10-12) acoustic processor.

House of Representatives Report 98-1086 contained the following language relative to this initiative:

"AQA-7

"Improvement Program for Naval Reserve P-3 Aircraft

"There are approximately 135 P-3A and P-3B aircraft in the Naval Reserve that have the AN/AQA-7 equipment to process the acoustic signals of submarine targets. In order that the Naval Reserve adequately counter the latest Soviet threat and that expected in the early 1990's, and also achieve horizontal integration between the active and reserve components of the Navy, the Committee believes that the AQA-7 processing system must have an improved display system incorporated. Consequently, the Committee directs that the Department procure five service test models of the improved AQA-7 display system in order to test and evaluate this system to determine fleet operability and suitability. A report on the results of this evaluation is to be submitted to the Committee no later than June 1, 1985. The Committee considered making a significant number of line item reductions in the modification account, but decided against that action in order to leave sufficient funds to execute this directive and to determine whether this could be a cost effective modification to our maritime patrol aircraft."

The AQA-7 Display Update Kit extends the improved operator interface by providing a modern, high resolution, quick reaction monochromatic CRT display subsystem. In addition to presenting twice the amount of real-time acoustic data currently available to the AQA-7 operator, the Display Update Kit provides computer-assisted target classification by incorporating into the AQA-7 the Passive Acoustic Detection and Classification (PADC) algorithms which are currently operational on board the Active Duty Fleet aircraft. Another benefit to the Reserve operator is the preservation of the hard-copy acoustic display on the AQA-7 chart recorder. Hard copy provides the experienced operator with an additional display dimension which is invaluable during mission and post-mission analysis. Because the Reserve acoustic operators will have standard display formats of acoustic data identical to their counterparts in the Active P-3C aircraft, (1) fleet/Reserve interoperability aboard aircraft and debrief sites will be enhanced, and (2) crewmen from the fleet joining the Reserve P-3 units will have compatible equipment with which to work, thereby decreasing the amount of retrogressive training required.

In order to fully exploit the capabilities inherent in the AQA-7 Display Update Kit funded in FY 85 and to provide the enhanced acoustic processing capability necessary to meet Soviet submarine technology of the 90s, the AQA-7 system requires further signal processing enhancement.

The Naval Reserve Association proposes the procurement in FY 86 of five (5) Service Test Model Processing Enhancement Kits for the AQA-7 acoustic processor.

TABLE 1.—AQA-7 PROCESSING ENHANCEMENT KIT SIGNAL PROCESSING IMPROVEMENTS

Mode	Capability improvement over AQA-7 with display update	Maximum channels available per shipset
LOFAR	Doubled	32.
DIFAR	do	16.

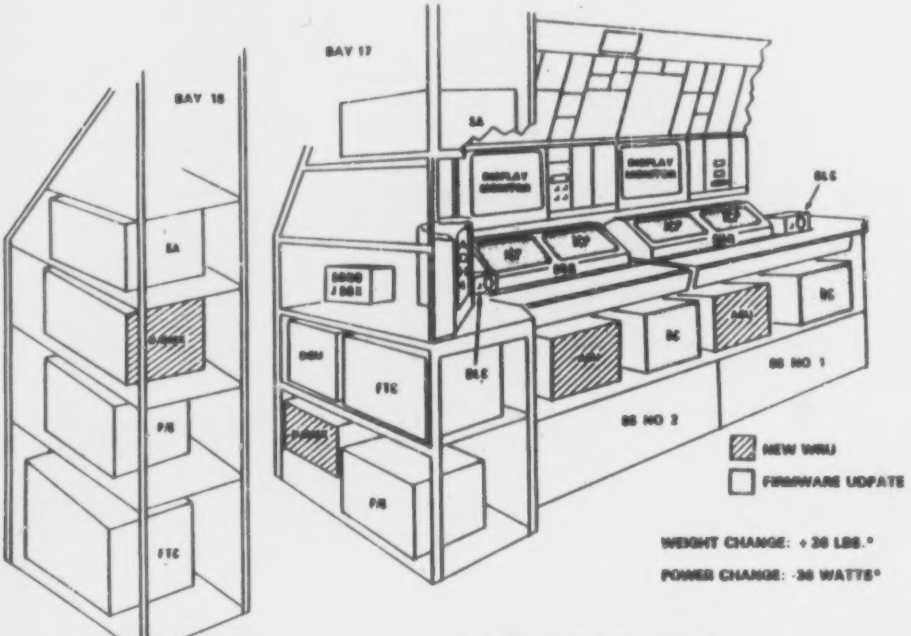
TABLE 1.—AQA-7 PROCESSING ENHANCEMENT KIT SIGNAL PROCESSING IMPROVEMENTS—Continued

Mode	Capability improvement over AQA-7 with display update	Maximum channels available per shipset
Verniers	Doubled	96 (Verniers).
DICASS	Quadrupled	4 (w/Extended Doppler).
DICASS Omni	do.	8 (w/Extended Doppler).
ERAPS	New capability	2.

The AQA-7 Processing Enhancement Kit provides a quantum step in ASW acoustic capability for the Reserve P-3 aircraft in the areas of signal processing, post-processing/operator aids, system availability, and growth potential. The enhanced AQA-7 signal processing is shown in Table 1. It is important to note that the AQA-7 has been designed for mixed-mode processing; and this capability is expanded with the Processing Enhancement Kit. For example, a concurrent AQA-7 processing arrangement could be eight (8) LOFAR, eight (8) DIFAR, two (2) DICASS, and one (1) ERAPS. An additional improvement to the DICASS mode is entended doppler processing to accommodate the high-speed threat.

The AQA-7 system availability, a major component in Reserve ASW mission success, is nearly doubled with the incorporation of the Processing Enhancement Kit. With the addition of two (2) independent processing paths which provides a total of four (4), at least three-fourths of the system remains operational even with a major failure within a processing unit. Incorporation of new technologies for signal processing also doubles the system reliability, when compared to the AQA-7 3V system, which further improves system availability.

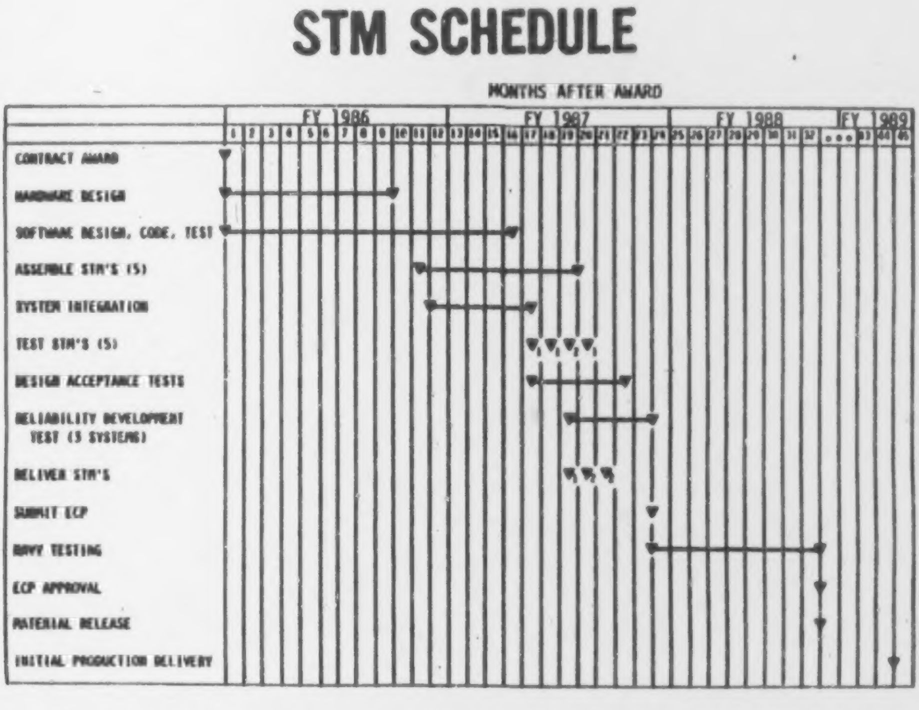
Figure 1. P-3A/B PROPOSED AIRCRAFT INSTALLATION FOR AQA-7 PROCESSING ENHANCEMENT KIT



*COMPARED TO AN/AQA-7A(V)11/12

The AQA-7 Processing Enhancement Kit is designed to minimize its life cycle costs. Ground rules, such as retaining the AQA-7 footprint and building upon existing capability, minimize not only acquisition cost but also aircraft installation cost. Figure 1 depicts the P-3A/B aircraft installation of the AQA-7 Processing Enhancement Kit which provides an estimated 36 watt power savings and a minimal 26 lb. weight increase. Since the Kit will accommodate both the AN/ARR-72 and AN/ARR-78 Receivers, the Naval Reserve has the option to use either receiver or a combination of the two to supply the AQA-7 with 32 processing input channels. The recurring cost of the AQA-7 Processing Enhancement Kit is relatively inexpensive as compared to the capability gained and is estimated to be $0.33 million per shipset in FY 1986 funds. The common module theme minimizes impact on the established AQA-7 logistic network and, along with the significant reliability improvement, minimizes maintenance cost.

Figure 2. AQA-7 PROCESSING ENHANCEMENT KIT



Five (5) STMs are needed for Operational Test and Evaluation (OT&E) by OPTEVFOR. The schedule shown in Figure 2 could be pursued and, following a successful OT&E, the procurement of production sets could commence in FY 1989 and could be incorporated in Reserve P-3A/B aircraft commencing in FY 1990. Completion of this modification would significantly enhance the capability of the Reserve P-3A/B aircraft. A P-3A/B with the TAC/NAVMOD and the AQA-7 Processing Enhancement system would provide the Navy and the United States with a very capable counter to the Soviet submarine menace.

The Reserve P-3A/B acoustic modernization program as outlined above, including the Display Update funded in FY 85 and Signal Processing Enhancement requested in FY 86 will provide the improved ASW detection capability necessary for the Reserve VP squadrons in the 90s while offering a low-cost modernization alternative until and all P-3C force can be achieved. (See table below—FY 1986 Dollars in millions.)

	Display update	Signal processor enhancement
R&D	[1] 7.5	10.5
Production per ship set	0.35	0.33

[1] Funded in FY 86.

It is essential in the view of the Naval Reserve Association that signal processing R&D funding of $10.5 million be provided in FY 86. The development and testing lead-time necessary to be able to make production decisions in FY 89-90 require FY 86 start-up of the R&D effort.

This initiative, if successful, offers great promise in that for the cost of two (2) new P-3C aircraft, more than one hundred (100) P-3A/B reserve aircraft can be significantly upgraded.

Every mariner is taught from day one to recognize the proximate danger inherent in a "constant bearing, decreasing range" situation. The block obsolesence of the Reserve MPA force is such a situation. For several years now, the Naval Reserve Association has sounded the alarm. We urge that a rational, realistic plan be implemented this year to solve this critical problem. The capability of the MPA force and the threat they counter deserve better than "crises management" executed when "in extremis".

Recommendation

The Naval Reserve Association strongly recommends the Congress to authorize and fund the procurement of five (5) Service Test Models of the AQA-7 Processing Enhancement Kit, including contractor environmental and reliability testing at a cost of $10.5 million in FY 1986.

LAMPS MK I HELICOPTERS

During the past year two Naval Reserve squadrons, HSL-84 at NAS North Island, CA and HSL-74 at NAS South Weymouth, MA began receiving the SH-2F LAMPS MK I helicopter. Next year, HSL-94 at NAS Willow Grove, PA will receive the first of their SH-2s. Current Navy plans call for each of these three (3) Reserve squadrons to initially be equipped with eight (8) LAMPS MK I helicopters.

The mission of these three (3) squadrons will be to provide LAMPS aircraft detachments for the frigates of Naval Reserve Forces, FF-1052s and FFG-7s, and during periods of mobilization to provide the same LAMPS capability for the Coast Guard WHEC cutters. These cutters have either just completed or are currently undergoing conversion which will make them fully compatible with the LAMPS Mark I system.

The Reserve frigates with their LAMPS helicopters will be an integral part of the U.S. Navy's total ASW capability. Operting equipment identical to that in the active force, this ASW system is a perfect example of Secretary Lehman's concept of "horizontal integration" of Active and Reserve Component Forces.

Last year the Naval Reserve Association proposed that Congress provide sufficient LAMPS MK I resources for all Active and Reserve frigates to have one embarked helicopter during peacetime. In addition, the NRA recommended that Congress provide the Naval Reserve Forces with enough LAMPS MK I helicopters to fill the decks of the Coast Guard WHECs and to provide a second LAMPS MK I for the eighteen (18) FFG-7s programmed for the Naval Reserve, and which are capable of embarking two (2) helicopters.

The NRA pointed out that when the cost of the frigates and their ASW equipment is considered, for less than a 3% increase in ivestment and operating costs, the Force Commander during wartime could realize a 30% to 50% increase in capability by having the second helicopter embarked.

The Congress generally endorsed the NRA round-out position for the second LAMPS helicopter. The Senate Armed Services Committee directed the Navy to submit, this year, a comprehensive study on total Active and Reserve ASW Forces. This study was to address among other things, the concept of a second LAMPS MK I on those ships capable of handling two. The Navy's FY 1986 budget provides for six (6) additional SH-2F helicopters to cover the additional frigates added last year to the Naval Reserve Force by the Secretary of the Navy and for additional attrition. However, even with this buy there will be insufficient LAMPS MK I assets to provide the second helicopters for the Reserve FFG-7s. (See table below.)

1995 LAMPS MK I RESERVE REQUIREMENTS [1]

Type of ship	Number of ships	Number of embarkation slots
FFG-7	18	36
FF-1052	8	8
WHEC	12	12
Total	38	56

[1] Assumes the 85% deployment estimate for ship's offsets the 17% requirement for pipeline aircraft.

The Navy has stated that there will be sufficient SH-2F assets available in 1995 to fulfill all active Navy requirements and to provide the Reserves with only one (1) LAMPS MK I per ship. Although no advanced procurement for the SH-2F has been included in the FY 1986 budget submission, the NRA understands that the Navy's current plans are to consider the procurement of six (6) additional SH-2F helicopters in 1987 to permit the Reserves to embark two (2) LAMPS MK I's on their FFG-7s. The Navy is now also planning to pursue this concept in the active force with the LAMPS MK III.

The Naval Reserve Association believes it would be most useful for the Congress to provide additional impetus to the Navy's current planning to enhance Naval Reserve ASW capability. It recommends the Congress allocate $4.5 million of the $69.9 million requested in FY 1986 for SH-2 procurement toward advanced procurement for six (6) aircraft in FY 1987 with instructions that this be the first year of a three-year buy of the eighteen (18) aircraft needed to provide the full round-out capability to the Naval Reserve Forces.

TOWED-ARRAY FOR THE NAVAL RESERVE FRIGATES

One of the most critical aspects of our maritime strategy is our ability to project and sustain the full range of combat and support forces. Current planning requires the movement of 95 percent of the dry cargo and 99 percent the fuel by sea.

In the face of this massive sealift requirement, it is well to remember that this effort will be opposed by some 300 Soviet submarines of substantial capability and endurance. Germany, with but 50 attack submarines, was able to sink during 1942 alone some 1,664 allied ships. Our available inventory of merchant ships today, including the National Defense Reserve Fleet, cannot absorb that attrition and carry out its mission.

The prime mission of the Naval Reserve Force is ASW Maritime Escort. The introduction of the FFG-7 and FF-1052 frigates has provided the Reserve Surface Force with a modern state of the art weapons system to accomplish this tasking. The number of convoy escort ships available even when including those provided by our NATO allies, totals about 60–65 escorts. Since the available ships fall short of the requirements (Congressional Budget Office estimates the U.S. Navy shortfall at approximately 100 ships), the Naval Reserve Association believes highest priority must be given to maximizing existing ship capability. This includes providing Reserve Force frigates with both Towed-Array Sonar and a full complement of two (2) SH-2 LAMPS I helicopters. The SH-2 LAMPS helicopter issue will be discussed in another section of this edition of the NRA News.

Secretary of Defense Weinberger in this year's Annual Report to Congress addresses the Towed-Array issue as follows:

"TACTICAL TOWED-ARRAY SONAR (TACTAS)

"The long-range detection capabilities of TACTAS will substantially enhance the ASW capability of our surface combatants, providing an essential counter to the increased range of weapons carried by Soviet submarines. the AN/SQR-18 towed-array sonar system is being deployed aboard all 46 of the FF-1052 frigates operated by active and reserve units, and aboard all of the Naval Reserve's FFG-7 frigates. The AN/SQR-19, a more advanced towed-array sonar system now in the final stages of development, will be installed later in the decade on DD-963, DDG-993, and DDG-51 destroyers and on CG-7 cruisers and active FFG-7 frigates. We are introducing improvements to both systems to maintain their detection capabilities against Soviet submarines."

The Naval Reserve has learned that in accordance with the Fleet Modernization Program (FMP) all Reserve frigates will be equipped with Towed-Array Sonar by 1988.

The funding profile to accomplish this goal is as follows:

	Fiscal year—			
	1984 actual funding	1985 planned funding	1986 proposed funding	1987 proposed for authorization
TACTAS procurement:				
Quantity	12	10	16	19
Millions of dollars	116.7	112.0	165.4	184.0

NRA fully supports this program which will permit for the first time the NRF frigates to perform the mission for which they were built.

THE RESERVE TACTICAL AIR WINGS

The modernization of the Reserve Tactical Air Wings continues as the horizontal integration policy instigated by Secretary Lehman in 1983 matures. Credit must be given to the House Appropriations Committee for greatly accelerating the F-14 transition by the addition of $68 million last year to accomplish essential modernization of twenty-four (24) early block F-14s.

FY 86 continues the modernization process. The Chief of Naval Operations, Admiral James D. Watkins, in his posture statement before the Senate Armed Services Committee reaffirmed his commitment to the modernization program in the following statement:

"The Naval Air Reserve Force has embarked on an ambitious modernization program with both carrier airwings slated for transition to state-of-the-art aircraft: F-14, F/A-18, A-7E, and E-2C. The first Reserve E-2C squadron is now in place. VF-301 accepted its first F-14 aircraft in October 1984, and F/A-18 transition training for VFA-303 aircrew and maintenance personnel has been underway for over a year. In FY 86, VFA-303 will receive its own aircraft and be ready to mobilize. A-7E transition for one squadron in FY 85 and two squadrons in FY 86 will complete the programmed upgrade for the A-7B."

Secretary Lehman in his FY 86 posture report stated:

"The reorganization of the Naval Reserve to a "horizontal integration" has had the effect of shifting a substantial portion of our force structure manning to the Ready Reserve. A total of 35 ships of the 600 ship Navy will be manned by Selected Reserves, in addition to the augmentation of essentially all naval units by Selected Reserves upon mobilization. The fifteenth Active Carrier Air Wing has been deleted from the program and the fifteenth carrier will carry a Reserve Air Wing. This increased dependence on the use of the Ready Reserve has enabled us to hold the active manpower growth to about 1 percent per year."

The second Reserve Air Wing will be assigned to the SLEP carrier.

The quality and capability or Reserve aircrews and maintenance has been demonstrated over and over again and is reflected in traditionally outstanding safety and performance achievements.

The problems associated with Reserve Air Wing mobilization capabilities has always had at its core the inability to support and sustain carrier operations with the obsolete aircraft assigned to the Reserve air squadrons. This situation has been greatly alleviated by the ongoing modernization program.

There remain, however, several programs that require urgent attention if Reserve Air Wing capabilities are to be fully exploited.

Accelerated transition from the E-2B to the E-2C at Miramar and from the EA-6A to the EA-6B at Norfolk and Whidbey Island should be considered. The increasing difficulty in supporting and maintaining these older weapon systems, as well as the increased demands placed on their capabilities by the F-14, F/A-18 modernization program, require their early retirement from the force. NRA most strongly supports efforts to increase the procurement of these aircraft.

The second area of concern is the lack of A-6E and S-3 aircraft squadrons in the Reserve Air Wing. The A-6E is the most potent and capable all-weather bombing aircraft in the world. The lack of this capability in the Reserve Carrier Air Wing is regarded as a serious shortfall in war fighting capability.

The Naval Reserve Association most strongly supports Navy initiatives concerning A-6E Wing replacement and development of an updated A-6E aircraft.

The remaining aircraft dificiency involves the lack of S-3 fixed ASW aircraft for the Reserve Air Wings. The Naval Reserve Association supports the reopening of the S-3 production line in order to meet Active and Reserve Air Wing requirements and also to satisfy fleet attrition needs in the future.

HAL/HC SQUADRONS

Last year the Naval Reserve Association was successful in bringing to the attention of the Congress the unsatisfactory condition of the Combat Search and Rescue and Light Attack Helicopter Squadrons of the Naval Reserve Force. The effectiveness of these efforts is apparent in the House of Representatives report 98-1086 which states the following:

"UH-60 Navy Combat Search and Rescue (SAR) Helicopter

". . . Additionally, testimony of outside DoD witnesses before the Committee and responses by Navy witnesses appear to highlight the fact that there are two critical shortages in the hardware provided for the Combat SAR Squadron and the two Light Attack Helicopter (HAL) Units, all Naval Reserve Units. The Combat SAR mission calls for the rescue of downed Naval Aviators or other friendly pilots from enemy-held terrain. The Light Attack Helicopter Mission supports the Special Warfare Forces, i.e. Seals, for clandestine insertions and extractions into/from enemy territory. According to all reports, the crews of both types of units are highly trained. However, the aircraft assigned are incapable of performing either mission with any reasonable degree of success.

"The Committee notes that the Commanders in Chief of the Atlantic and Pacific Fleets have voiced their deep concern of the inadequacy of the CSAR capability. Also, there has been the considerable increased emphasis on the Special Forces by the Department of Defense recently.

"A proposal, which apparently is acceptable in Navy circles, would combine the missions of CSAR and HAL into three eight (8) plane squadrons utilizing the off-the-shelf UH-60 Blackhawk Helicopters. This would provide an immediate answer to the lack of capability now in existence in both communities and illustrate that to put a mission completely in the Naval Reserve does not mean that it is mandated to go obsolete. Also, the contention, that the receipt of new hardware has to await the arrival of the JVX, would delay the modernization of the units until the mid to late 1990s, obviously an inacceptable solution.

"The Committee, therefore, requests the Secretary of the Navy to submit by February 1, 1985 a detailed plan by which the CSAR and HAL missions are organized and equipped with modern hardware with which they will be able to accomplish their assigned missions."

The two (2) UH-60 helicopters funded last year are expected to be delivered in July of 1985. The Naval Reserve Association is most concerned about program developments, or more specifically, lack thereof concerning this most important mission.

First, inexplicably, no follow-up procurement was contained in the FY 86 budget submission. Additionally, NRA has learned that Navy planners intend to combine both missions into two (2) 9-plane squadrons. This approach not only deactivates a much needed squadron but also reduces force capability by eliminating six (6) aircraft from the force totals.

The Naval Reserve Association believes that the growth to fifteen (15) carrier battle groups demands more, not less, Combat Search and Rescue capability and, secondly, the increased emphasis on special forces requiring dedicated aircraft support makes this planned reduction of Reserve HAL capability inadvisable to say the least.

NRA has been told that subsequent POM will contain requests for additional UH-60 aircraft. However, NRA proposes that four (4) additional UH-60 helicopters be procured in FY 86 at a cost of $25 million. These aircraft will permit the transition initiated this year to continue in these reserve squadrons and will provide a near-term capability to deploy two (2) 2-plane detachments to meet any worldwide CSAR, HAL or Naval Special Warfare contingency.

SUMMARY

Mr. Chairman, Committee members, the NRA appreciates your interest in continuing to provide the Guard and Reserve with the capable, modern weapon systems that are essential to maintain their high level of readiness and performance.

Equipment is the key to mission readiness. The Reserve Maritime Patrol Force, perhaps our most capable force segment, is facing serious difficulty. We recognize that some of our recommendations, particularly the AQA-7 Signal Processor Update initiative, are a radical and new approach to Reserve equipment modernization, i.e., an R&D program for Reserve aircraft. We take this approach only because, as far as we know, no other modernization alternative exists or is planned. The Naval Reserve Association believes the most cost-effective wartime asset is a Reservist trained in a modern, capable weapon system. We look forward to working with you on these initiatives and thank you for the time you have provided us to present them.

[Questions submitted for the hearing record follow:]

QUESTIONS SUBMITTED BY SENATOR WILLIAM S. COHEN

REDUCING THE COST OF SHIPBUILDING

Senator COHEN. Secretary Pyatt, competition is not the only means available to reduce the cost of shipbuilding. What is the Navy doing to eliminate unnecessary specifications which can increase costs?

Mr. PYATT. The most significant step is to place a cost threshold on a ship. Secretary Lehman did this on the DDG-51 and SSN-21 programs to provide a clear message that cost control is a major management issue. This causes the acquisition system to think twice before adding nice to have features. Second, once cost thresholds are established, the design process must be directed not only toward performance, but to producibility as well. This means substantive industry involvement during the design phase. In DDG-51, the Navy and industry worked together jointly in preparing the contract design to ensure unnecessary specifications were eliminated from the design. In the SSN-21 program, the contract design may be conducted competitively by both potential building yards. Recent examples of significant industry involvement and the use of commercial specifications in the design are the TAGS, MSH, and TAH programs. These programs all resulted in substantial cost savings through the use of "performance" type Circulars of Requirements rather than detailed how-to-do-it Military Specifications.

Senator COHEN. What is the Navy doing to promote use of innovative, more efficient construction tenchiques, such as modular construction for ships?

Mr. PYATT. We are taking two approaches aimed at taking advantage of industry's innovation. First, we are increasing shipbuilder involvement in the ship design process. The most notable examples are DDG-51, MSH, TAH and TAGS. In the case of DDG-51 a joint shipbuilder—Navy design team worked for approximately one year on the ship's contract design to ensure resulting designs are efficient to produce. In the MSH, TAH and TAGS programs, the bulk of the design was conducted by industry to ensure producibility and compatibility with each yard's modular construction capability. The second area is through competition. The increased competition in all of our shipbuilding programs has caused the shipyards to seek more productive, and therefore cost effective, ways to construct ships.

SHIP SYSTEMS ENGINEERING STANDARDS

Senator COHEN. What promise does the "Ship Systems Engineering Standards" program hold for reduction of ship construction costs?

Mr. PYATT. In addition to standardization of ship construction techniques and efficiences associated with such standardization, it is expected that the backfit and modernization costs for these ships would be reduced over their service life.

Senator COHEN. Would you summarize the actions taken by the Navy to write contract provisions more favorable to the government?

Mr. PYATT. Increased use of fixed-price type contract provisions rather than cost reimbursement provisions is shifting cost risk from the government to the contractor. In major shipbuilding programs, we are awarding ships under fixed-price incentive provisions with a 50/50 share line to incentive cost reduction throughout production. In the past three years, we have reduced cost reimbursement contracts from 27 percent to 18 percent of total contracts including R&D. Through prime contract clauses, we are requiring competition on subcontracts and expanding cost saving opportunities. To preclude escalation of spare parts prices, we prescribe limitations for price increases from one year's buy to the next. We also place a notice in contract solicitations that only fair and reasonable prices will be paid.

We have been highly successful in limiting contractor claims through a notification of changes clause. Under this clause, the contractor must notify the Navy of any potential constructive changes and obtain the contracting officer's concurrence prior to implementing what he believes to be a change. We are tightening interpretations of allowable costs through clauses specifying unallowable public relations costs and establishing reasonableness criteria for corporation aircraft costs. To ensure our ability to complete future buys of systems and spare parts, we are including contract provisions to provide needed data and to guarantee our right to use all data resulting from our contracts. Where appropriate to achieve quality products, our contracts include manufacturing requirements clause. A final example of beneficial contract provisions is the application of extended warranties to ensure that contractors stand behind their products and correct deficiencies when they arise.

SH-60B PEACETIME LIFE EXPECTANCY

Senator COHEN. What is the peacetime life expectancy, in years, for the SH-60B helicopter?

Mr. PYATT. Life expectancy of the SH-60B is projected to be approximately 26 years based on a design life of 16,000 flight hours.

Senator COHEN. Is there currently an operational requirement for the SH-60B to carry an air-to-surface or anti-ship missile? Is it likely the roles and missions assigned to the SH-60B in the future will include an anti-ship missile capability?

Mr. PYATT. The operational requirement for air-to-surface anti-ship missiles for the SH-60B was established in 1984. It is expected that approximately configured SH-60B's will be assigned to anti-ship missions including the launch of anti-ship missiles.

Senator COHEN. If the SH-60B airframe requires structural changes to carry an anti-ship missile, would it be more cost-effective to build structural capability into the helicopter during construction or to back-fit those changes later?

Mr. PYATT. The cost of production incorporation of anti-ship missile provisions is significantly less than the cost of SH-60B's needed to carry an anti-ship missile will be accomplished in production. There is no plan to back-fit airframes already produced.

Senator COHEN. Will the SH-60B helicopters built with funds provided in fiscal year 1985 include the structural modifications necessary to accommodate an anti-ship missile capability?

Mr. PYATT. Structural mods for anti-ship missile carriage and launch will be incorporated in as many SH-60Bs procured with FY-85 funds as possible. The actual number of airframes will be governed by material leadtime considerations.

QUESTIONS SUBMITTED BY SENATOR JEREMIAH DENTON

CV SLEP

Senator DENTON. Could I have a detailed statement of work included in the CV SLEP program? This means what work we do on each ship? What work is accomplished in SLEP that is not or cannot be accomplished in regular or extended overhauls?

Admiral FOWLER. CV SLEP, as an alternative to new construction, is designed to extend the service life of selected aircraft carriers by fifteen years through accomplishments of individually tailored work packages that include: (1) increased scope of repairs to basic hull, power generation systems and auxiliary systems, (2) upgrading of basic support systems capabilities to meet present and future weapon system requirements, (3) reduced stress on propulsion plant equipments and operating personnel by upgrading aircraft launch and recovery systems, (4) replacement of equipments no longer logistically supportable (i.e., antiquated) or requiring excessive maintenance, (5) accomplishment of that modernization scheduled in the Fleet Modernization Program, and (6) accomplishment of tailored alterations designed to be themselves, life-enhancing, by providing greater redundancy, reliability, or both. There is no individual SLEP work item that could not be completed in a regular or extended overhaul; however, completion of the total life-extending package in a single availability to ensure reliable post-SLEP operations is of such complexity that successful execution demands both extended availability duration and the unique planning and management actions normally associated with new construction projects.

BATTLESHIP REACTIVATION

Senator **Denton**. What is the nominal manning level (rank, rate, skills) for a reactivated Battleship? What rates/skills are in short supply in the Navy today?

Admiral **Fowler**. Manning of the USS *Missouri* (BB-63) is summarized in the table below. We expect the manning on the USS *Wisconsin* to be very similar.

Rank	*Number*
Crew:	
Captain	1
Commander	8
Lieutenant Commander	10
Lieutenant	12
Lieutenant junior grade	13
Ensign	14
W-4	0
W-3	1
W-2	6
E-9	9
E-8	18
E-7	56
E-6	107
E-5	178
E-4	353
E-3	183
E-2	549
Total	1,518
Marines:	
Captain	1
1st Lieutenant	1
E-8	1
E-7	1
E-6	1
E-5	4
E-4	7
E-3/2	28
Total	44
Helo crew:	
Lieutenant	1
Lieutenant junior grade	3
E-8	1
E-6	1
E-5	1
E-4	4
E-3/2	4
Total	15
Total ship	1,577
Total officers	58
Total CWO	7
Total CPO	83
Other enlisted	1,370

Battleship reactivation

Skill breakdown	*Number*
Combat systems:	
*Electronics technician	14
*Electronic warfare technician	6

Skill breakdown	*Number*
*Fire control technician	100
*Gunner's mate	87
*Operations specialist	55
*Radioman	28
*Intelligence specialist	1
Engineering:	
Boiler technician	103
*Electrician's mate	40
*Engineman	10
Fireman	162
*Hull technician	28
*Interior communications electrician	24
*Machinist mate	108
*Machinery repairman	5
Aviation:	
Aviation machinist mate	2
Aviation structural mechanic	2
Aviation electronics technician	2
Aviation electrician's mate	1
Aviation antisubmarine warfare operator	3
Support/administration:	
*Aerographer's mate	12
Boatswain's mate	63
Disbursing clerk	8
Dental technician	2
Hospital corpsman	12
Journalist	3
Lithographer	2
Legalman	1
Master at arms	11
Mess specialist	67
Navy counselor	1
Postal clerk	5
Photographer's mate	2
Personnelman	17
*Quartermaster	9
Religious programs specialist	3
Ship's serviceman	10
Storekeeper	16
*Signalman	13
Seaman	412
Yoeman	14

The battleships have not suffered any skill or rating shortages. The skills marked by an asterisk are those experiencing some degree of Navy-wide manning and retention shortfall. Not surprisingly, these shortages are concentrated in mission critical sea intensive skills whose members have excellent civilian opportunities or highly arduous jobs or both. Navy has targeted various levels of Selective Reenlistment Bonus (SRB) to all of these skills. This has resulted in a measurable manning improvement in each during FY-85. Contributing to this success is the increased SRB ceilings approved by Congress in the FY-85 Authorization Act. The ceilings were increased from $20,000 to $30,000 with the stipulation that no more than 10 percent of the bonuses could exceed $20,000. Navy implemented the new ceilings in December 1984 and targeted the $30,000 ceiling to our three most severe manning problems: the Nuclear Field, Fire Control Technicians and Surface Sonar Technicians. Although we only have two months of data, the improvement in the number and length of SRB reenlistments has exceeded our expectations. In FY-84, for example, the average length of SRB reenlistment was 4.6 years. Through February 1985, the average length of reenlistment in the three skills targeted with the $30,000 SRB was 5.6 years. Authority to increase the percentage of bonuses above $20,000 from 10 to 25 percent would be even more effective in eliminating petty officer imbalances in our most critical skills. We estimate that 8.5 percent of the existing 10 percent will be targeted to the Nuclear Field in FY-85, leaving little flexibility for other critical skills. If approved, we estimate that 14 skills would be eligible for a bonus larger than $20,000 in FY-86. The average bonus for these skills would be $24,000. Any increased ceiling costs would be accommodated within the existing budget request.

SUBMARINES

Senator **Denton**. Would it be in the national interest to have a third yard qualified to build SSN's? Do you have any plans to encourage such a development?

Admiral **Fowler**. The Navy has no plans to add a third new construction submarine shipbuilding yard at this time. The competition between the two existing submarine new construction yards has resulted in SSN's being built in an increasingly more efficient and cost effective manner. Furthermore, the current Fiscal Year 1986 Defense Plan of four SSN's per year does not fill the existing shipyard capacity.

T-AO 187 CLASS OILERS

Senator **Denton**. Can you tell me the status of procurement for the T-AO 187 class of oilers? Specifically, will you split this procurement among two or more builders to help support our national shipbuilding capacity?

Admiral **Fowler**. The status of the FY85 T-AO oiler procurement is that we are currently involved in the source selection process. A decision to split the procurement among two or more builders has not yet been finalized.

COST PENALTY OF TWO VICE THREE CRUISERS

Senator **Denton**. What costs would be paid if the procurement of Aegis crusiers were reduced from three to two ships per year, boith in competing the ship construction and in competing the Aegis system itself?

Admiral **Fowler**. Your question is difficult to answer, since we must predict how our shipbuilders and major suppliers would react to this profile. However, our cost estimate at this time for such a stretch-out is approximately $800 million more. Common sense logic supports this estimate. Each deferred ship will be the cheapest of an annual lot buy of three and is replaced three years later, as a more expensive first or second ship. This is further exacerbated by inflation, which accompanies the subsequent program stretch-out. An underlying assumption made in the above estimate is that we will compete in a "winner take all" environment. This removes industrial base considerations which currently exist, since such considerations require giving one ship to each yard each year, and therefore would not induce competitive bidding by the shipbuilders. The cost increase could very well be greater. Regarding the major Aegis Weapon System components, less impact would be felt, assuming that DDG-51 stays at planned levels. Continuation of our competition plan is still achievable due to commonality with the DDG-51 Aegis Weapon System. Since it is possible to combine CG/DDG Aegis Weapon System buys, the reduction from 3 to 2 CGs will reduce the Aegis buy in FY 87 alone from 5 to 4 when combined with DDG. The outyear reductions are relatively less. Such quantities still provide a base for competition. We must emphasize that the most important impact of such a proposed stretch-out is the delay in delivering Aegis cruisers to the fleet. The first ship, *Ticonderoga,* demonstrated her great capability with her Aegis phased array radar and her automated command decision system in the real world hostile environment off Lebanon last year. The embarked fleet anti-air-warfare commander stated that for the first time he was able to manage the air picture instead of reacting to it. Operational tests proved that *Ticonderoga* can provide impressive anti-air-warfare fire power. Aegis cruisers now being built are even more capable. They increase battle force offensive power with Tomahawk cruise missiles; anti-submarine-warfare with towed arrays and LAMPS III; and overall firepower and sustainability with the Vertical Launch System. We have postponed their deployment too long. Further postponement will simply increase the risk we will have to accept in the fleet's ability to accomplish its mission. More of this advanced seapower capability is needed at sea now.

T-AGOS OCEAN SURVEILLANCE SHIPS

Senator **Denton**. I understand that there have been some problems with procurement of the initial T-AGOS ships. Are you seeking to qualify other yards for construction of those ships and, if so, what particular capabilities are of greatest concern to you?

Admiral **Fowler**. The problems associated with the initial procurement (T-AGOS 1-12) have been limited to the shipbuilder's financial situation. There is no particular need to "qualify" other shipyards to construct these ships since they are relatively small, non-complex, commercial ships, and a large number of shipyards are already capable of constructing them. The number of shipyards who responded to the current FY 85 procurement has confirmed this assessment. In selecting the shipyard to construct the FY 85 ships the Navy is evaluating production and technical capabilities, as well as the offeror's labor, management and financial resources.

BATTLESHIP REACTIVATION

Senator DENTON. Would deletion of the requested long-lead funds for the *Wisconsin* from the FY 86 budget increase costs for the reactivation? Delay the reactivation?

Admiral FOWLER. Deletion of the long-lead funds in the FY 86 budget would cause the reactivation cost to increase and would delay the reactivation. Should the long-lead and funding both be delayed a year the delivery of the ship would also be delayed a year. Should the long-lead funding be added to the full funding in FY 87 the delivery would be delayed approximately 9 months. Delivery is currently scheduled for January, 1989. Should the long-lead and full funding both be delayed a year the budget request of the *Wisconsin* would increase from $475.9M to approximately $499M. Should the long-lead funding be added to the full funding in FY 87 the budget request would rise to approximately $494M.

Senator DENTON. What are the current plans for the Phase II conversions on the reactivated battleships, both in the *New Jersey* and *Iowa*, already in commission, and the *Missouri* and *Wisconsin*, yet to come?

How essential are those conversions to the operational capability of the ships?

Admiral METCALF. After evaluating the operational effectiveness of *New Jersey* in her present configuration, the Navy concluded that the reactivated battleship meets or exceeds all requirements; consequently, a major upgrade is not required and Phase II plans have been cancelled for the BB 61 class. As with all other active ships, battleships will receive modest self-defense, command and control, and hull and machinery upgrades during their expected service lives through the Fleet Modernization Program.

Senator DENTON. What spare parts problems face the Battleship Reactivation Program, particularly (a) Fire Control systems, both radar and optical; (b) Engineering plant, particularly pumps, valves, and turbine and reduction gear parts; (c) Hull fittings, particularly water tight hatches?

Admiral FOWLER. Spare parts support has not been a significant problem for the Battleships. Routine maintenance piece parts (springs, gaskets, valve packing, and bearings) share a high degree of commonality with modern fleet and are readily available. The equipments that are unique to the Battleships are supported with spare parts from the Memorial Battleships, inactive ships, as well as from new production. Where unique equipments are no longer cost effective to support they will be replaced with fit, form and function identical replacements.

For the particular equipments in question there have been no significant problems.

Senator DENTON. In the reactivation of *Iowa*, and I understand *New Jersey* as well, there was little work done on the engineering plant. That situation has not posed severe operational problems but has placed a tremendous burden on the ship's crew. What engineering work is scheduled for *Missouri* and *Wisconsin*?

Admiral FOWLER. On the contrary a considerable amount of work has accomplished in the engineering plant. The depth of the repairs accomplished in the main auxiliary machinery areas were determined by the machinery history, engineering operation experience and the importance of the function of the equipment in the system. Millions of dollars were spent overhauling rotating machinery, valves, boilers, and other engineering plant equipment. Some engineering systems were also modernized or replaced. Examples are: diesel marine fuel conversion, interior communications system, fire fighting systems, lube oil service pump replacement, compressed air upgrades and others. Feed back from ships force has been positive. For the most part the engineering work scheduled for *Missouri* and *Wisconsin* is similar to what was authorized on *New Jersey* and *Iowa*.

Questions Submitted by Senator Sam Nunn

STANDARD MISSILE

Senator NUNN. What is the Navy's planned schedule to develop a second-source (General Dynamics is the prime) for the Navy's family of Standard surface-to-air missiles?

Mr. **Pyatt**. We plan to conduct a solicitation so that contractor proposals will be available to Navy by late Fiscal year 1985. As part of our evaluation we also will make a determination as to the economic advantages to be gained from second sourcing. If second sourcing is determined most advantageous to the Government, we will award a contract to the contractor having the best overall proposal. A leader-follower arrangement will be utilized.

MK-48 ADCAP TORPEDO

Senator **Nunn**. What is the Navy's planned schedule to develop a second-source (Hughes is the prime) for the new MK-48 ADCAP?

Mr. **Pyatt**. Our planned schedule for developing a second-source for the MK-48 ADCAP is as follows. In Jan 1985 an RFP was issued for the second source with proposals due in April of 1985. We expect to award the second source contract in June 1985. In Dec 1985 we plan to exercise the option for second source qualification units and in Dec 1986 the option for second source pilot production units.

AEGIS

Senator **Nunn**. What is the Navy's planned schedule to develop a second source (RCA is the prime) for the Aegis combat system?

Mr. **Pyatt**. Our planned schedule for developing second sources for the components of the Aegis combat system is as follows. In Jan 1985 we held a pre-solicitation conference with industry. In Mar 1985 we will release the second source RFPs for MK-99 Fire Control System director and the transmitter. Then in May 1985, RFPs for the second sources of both the SPY-1 E/D radar antenna and the transmitter will be released. The proposals are due for the MK-99 director and the MK-99 transmitter also in May. In Jul 1985 the SPY-1 B/D proposals for the antenna second source and the transmitter second source are due. We expect to award the MK-99 second source contracts in Aug 1985, and make the SPY-1 B/D awards in Oct 1985. In 1987 we will hold the Aegis signal processor 2nd source competition and make that selection.

OTHER SECOND SOURCES

Senator **Nunn**. What is the Navy's planned schedule to develop a second source (Gould is the prime) for the SQR-19 towed array?

Mr. **Pyatt**. Our planned schedule for developing a second source for the SQR-19 towed array is as follows. Last Dec we issued a CBD Announcement seeking interested and capable second sources. In Mar 1985 we held a bidder's conference leading up to a May 1985 release of the CBD formal invitation for submission of qualification articles. By Oct 1985 the qualification articles are due and testing will begin. Following that testing, a production RFP for competition among qualified vendors will be issued in June of 1986 for an FY 1987 award.

Senator **Nunn**. What is the Navy's planned schedule to develop a second-source (Honeywell is the prime) for the MK-50 Advanced Lightweight Torpedo?

Mr. **Pyatt**. Our planned schedule for developing a second source for the MK-50 is as follows. This past Nov we held an industry briefing on our second source plans. Then in Feb 1985 we issued a draft RFP for industry comment. In Apr 1985 we will hold a bidder's conference and then in June release the final RFP. Responses will be due Jan 1986 leading to an award to the second source in June 1986.

Senator **Nunn**. What is the Navy's planned schedule to develop a second source (AVCO is the prime) for the engines for the LCAC air-cushioned landing craft?

Mr. **Pyatt**. The AVCO engine is an integral part of the LCAC design. We are, therefore, not planning to second source the engines but we are in the process of second sourcing the entire craft.

Questions Submitted by Senator J. James Exon

AEGIS SECOND SOURCING

Senator **Exon**. CG-47 Aegis hulls have dropped in price considerably. Earlier this year, Secretary Lehman testified before this committee that the Navy has "a major program to compete the components and now also the system intergration of the Aegis program." What specifically has been done? When will the Navy get a second source for the electronics and other systems on these ships so that their billion dollar per unit cost can be significantly reduced? Will you be able to second source the Aegis system on the DDG-51/Aegis ships?

Admiral METCALF. Addressing your question regarding Aegis Second Sourcing—we have prepared a plan which systematically establishes second source suppliers for the major Aegis Weapon System components four items, the fire control directors, fire control transmitters, SPY-1 antennas and SPY-1 transmitters will undergo source selection this year, leading to competition by FY88. In fact, requests for proposals for the fire control directors and fire control transmitters have been prepared and will be released this month. Selection of vendors is expected by July. Second sources for SPY-1 antenna and transmitter production will be selected by September. Regarding other second source opportunities—Competition planned for the major components of the Aegis Weapons System, in addition to previous competitions of the Vertical Launching System and the shipbuilding represent competition of nearly 70% of the total cost of CG-47's. In addition, some work is being performed by Navy activities, and appropriately not available for private sector competition. In fact, nearly 90% of the cost of all hardware production is either currently under competition or planned for competition in the near future.

We believe our efforts to promote competition have been successful and our budgets reflect the projected results of these competitions.

Finally, regarding multiple sources for DDG-51 Aegis Weapons Systems. As with the CG-47, the major Aegis Weapon System components are planned to be competed on the same schedule. In fact, competition of the remaining cruiser Weapon Systems would be far less attractive without the predicted savings provided by the on-coming destroyer acquisition program.

Our overall objective is to build these highly complex ships with the quality demanded in the fleet at a price acceptable to the taxpayer. Competition is one of the many tools we have used to accomplish our goal.

TAGOS OCEAN SURVEILLANCE SHIPS

Senator EXON. Last year we appropriated only 2 of the 3 TAGOS ships that were initially requested in the budget. Can we afford—in a mission sense—to continue to defer purchases of TAGOS ships?

Admiral METCALF. Although the procurement profile has stretched out, the timing of the contract is such that three ships will deliver in Fiscal Year 1988 and three in Fiscal Year 1989. This is the same schedule as the original 3-3 proposal.

The primary reasons for a 2-2-2 procurement are to maximize bidding competition and increase opportunities for the small off-shore supply boat builders. The range of builders who can build two hulls per year is much greater than those who can build three or more per year. The contract is a single source with options.

If the successful builder has a capacity greater than two per year, we may receive an unsolicited proposal to accelerate delivery.

In any case the program will not be delayed and our military objectives will still be met.

MK 48 ADCAP TORPEDO

Senator EXON. Can the Advanced Capability (ADCAP) version of the MK-48 torpedo handle the Soviet submarine and surface threats of the late 1980's and early 1990's?

Admiral THUNMAN. The MK 48 ADCAP torpedo is capable of countering the Soviet threat of the late 1980's and early 1990's. The computer design of the ADCAP torpedo will permit relatively inexpensive software changes to upgrade torpedo performance as the threat evolves.

Senator EXON. Will all existing MK 48 torpedoes be updated?

Admiral THUNMAN. The MK 48 ADCAP acquisition strategy procures only all-up-round ADCAP torpedoes. None of the existing MK 48 torpedoes will be converted to ADCAP torpedoes.

Senator EXON. What is the inventory objective for MK 48 torpedoes?

Admiral THUNMAN. The FY86 funded delivery period inventory objective for MK-48 [deleted].

Senator EXON. What is on hand today and what is on order?

Admiral THUNMAN. As of 26 January 1985, there were [deleted] MK 48 torpedoes in the inventory. There are [deleted] MK 48 torpedoes on order. A contract for [deleted] MK 48 MOD 4 torpedoes will be let in April 1985.

Senator EXON. Will we meet inventory objectives by the end of the decade.

Admiral THUNMAN. [Deleted.] By the end of the decade we will be at [deleted] the inventory objective.

Senator EXON. Do we have two full weapons loadouts of the MK-48 for every attack and ballisic missile submarine today?

Admiral **Thunman**. [Deleted.] The [deleted] MK 48 torpedoes in the inventory as of 26 January 1985 will provide [deleted] combatant shipfills.

PENGUIN MISSILE

Senator **Exon**. What is the status of the air-launched Penguin air-to-surface antishipping missile program for the Navy's LAMPS helicopters.

Answer. An effort is underway to modify the Penguin missile for use for LAMPS MK III helicopters. The optimum mix of aircraft configuration, numbers of missiles, and numbers of ships is still under review.

Senator **Exon**. Does the Navy continue to believe this is a potential force multiplier if it can be installed in a cost-effective way?

Answer. The additional capability provided by the Penguin missile is considered to be cost effective.

SONOBUOYS

Senator **Exon**. Admirals Crowe and McDonald testified before this committee last week that they are critically short of sonobuoys. Last year's May budget amendment proposed cutting back on sonobuoys. Can we afford to stretch out procurement of sonobuoys? What priority does the Navy place on buying our wartime requirement of sonobuoys, given that we need to expend them at a very high daily rate to keep track of Soviet submarines today?

Answer. The shortages cited by Admirals Crowe and McDonald are primarily the result of delinquent production deliveries. All contractors experienced a slower than anticipated production line maturity during the transition to an improved version of sonobuoys. Engineering changes were necessary to provide the fleet with increased acoustic sensor capability. Production line problems have been overcome and manufacturers are producing sonobuoys on a double shift operation to recover the contract schedule. Follow-on contract deliveries for the FY 1985 program and the FY 1986 budget request will provide a steady and reasonable increase to the war reserves, in addition to meeting projected training and operational expenditures.

LAMPS MK—I HELICOPTERS

Senator **Exon**. Currently, our LAMPS MK-I ASW helicopters data link [deleted] ASW information back to [deleted]. Do you believe that the SH-2F needs upgrading by putting an on-board acoustic signal processor in that aircraft? Given that these aircraft will be operational in the fleet at least through the end of this century, do you believe that we need to fundamentally upgrade their avionics?

Admiral **Martin**. Upgrading the capability of our Air ASW forces is a continuing priority. We are evaluating the benefits of adding an on-board acoustic signal processor to the SH-2F, and prototype units are installed currently in four SH-2H aircraft.

An Avionics Improvement Program (AIP) has provided the SH-2F with state-of-the-art navigation and Electronic Support Measures (ESM) equipment. This year, we commenced funding of an inflight torpedo presetter to increase SH-2F attack effectiveness. Also, we plan to provide the SH-2F with the capability to receive and data link new 99 channel sonobuoys.

Senator **Exon**. [Deleted.] By 1990, will we be able to embark at least one (if not two) LAMPS aircraft aboard every ship so configured therefor?

Admiral **Martin**. [Deleted.]

AFFORDABILITY OF SSN-21

Senator **Exon**. Admiral, I was told that the SSN-21 will incorporate many improvements over and above those that are now going into the "improved" (SSN-688) *Los Angeles* class. I understand the need to improve our submarines as newer Soviet submarines which are quiet and more capable enter their fleet. Last week, however, Admiral McDonald testified that he needs [deleted] more attack submarines just in the Atlantic Fleet, to carry out the Navy's forward maritime strategy. Now, if a 688 class costs between 600 and 700 million dollars and a new SSN-21 class submarine costs between 1.1 and 1.6 billion dollars, how are we ever going to be able to afford the number of submarines that we need to do the job?

Admiral **Thunman**. The cost ceiling for the SSN-21 lead ship is $1.6 billion in FY 1985 dollars. The cost ceiling for the fifth and follow-on ships is $1.0 billion, about 30% more than the Improved SSN-688. The SSN-21 effectiveness across the range of expected wartime missions is about three times that of the Improved SSN-688.

SSN-21's large effectivenss advantage over the Improved SSN-688 is the result of improvements in quieting, firepower, combat systems and propulsion.

Quieting improvements permit SSN-21 to operate at high speeds and still be less detectable than today's SSN-688 at slow patrol speeds. This permits SSN-21 to attain a tactical speed, which is the maximum speed at which it can detect and classify a threat SSN prior to counterdetection, at least [deleted] greater than the Improved SSN-688. With this high tactical speed SSN-21 can transit covertly at high speeds, spending more than on station while on patrol than the improved SSN-688. Once on station, SSN-21 is about 50% more productive than the Improved SSN-688 because of the higher tactical speed and greater search rates. Further, SSN-21 carries about 33% more weapons than the Improved SSN-688, directly increasing its combat sustainability over the Improved SSN-688.

The return in increased combat capability gained with the SSN-21 makes it a very cost effective weapons system. The procurement cost established for SSN-21 will permit us to maintain the 100 SSN force which is sufficient to execute the U.S. maritime strategy with about the same share of the shipbuilding (SCN) funds as the attack submarine force has historically enjoyed.

Questions Submitted by Senator Cohen for Senator John Heinz

SHIPYARD EFFICIENCY IMPROVEMENT

Senator **Heinz**. Mr. Chairman, in its report 98-636 on the bill (S. 2036) making fiscal year 1985 appropriations for the Department of Defense, the Senate Committee on Appropriations stated its belief that the overhaul funding balance between public and private industrial base concerns should be established on the basis of competition; noting that Congressional relief from civilian work force ceilings has placed public shipyards on comparable footing with private sector work force practices. Moreover, the Navy has for several years been extolling its expenditures and other efforts to improve the efficiency and economy of public shipyard operations.

Suddenly, however, Navy top management has apparently decided to interject itself and to upset the public versus private equilibrium level attainable through the competitive process. On February 22, 1985 Rear Admiral John C. McArthur issued a memorandum to all Naval shipyards commanders which directed immediate planning for massive employment reductions at public shipyards without requesting assessments of the planned actions. The memorandum shows that the Philadelphia Naval Shipyard would absorb approximately 25 percent of the total nationwide employment reductions. Today, Navy officials are discussing a reduced level of employment reductions.

However, details on the distribution of the proposed reductions are unavailable. The Navy's intentions on the employment reductions are anything but clear and the cloud surrounding this issue must be lifted. Therefore, I am submitting a series of questions intended to shed some light on this situation.

On February 22, 1985 Rear Admiral John C. McArthur, Deputy Commander for Industrial and Facility Management, issued a memorandum of all naval shipyard commanders on the subject of "Shipyard Efficiency Improvement." The following questions concern that document which Navy officials have ostensibly described as a contingency planning tool. Has the Navy definitely made a decision to reduce civilian employment levels at the eight shipyards? If the answer to this question is "yes", please provide a listing of the planned reductions by yard, detailed by labor categories, and identify the time phasing of planned actions.

Admiral **Fowler**. Yes. Actual reduction figures will be determined after the employment level required to accomplish the workload is approved. Employment levels at each shipyard will be based on their current and projected ship repair workload and projected improvements in efficiency and productivity. Employment levels will be established so that the shipyard can operate at its most effective working tempo to control costs. There is no specific implementation date now.

Senator **Heinz**. Will the position vacancies created by any planned personnel reductions remain vacant, be eliminated or be filled by other means, (e.g. subcontract labor)?

Admiral **Fowler**. The purpose of any reduction of naval shipyard employment will be to adjust the shipyard employment to the workload, reduce costs and improve the productivity and efficiency of the naval shipyards. Unless the workload increases in future years, the positions vacated will remain vacant or eliminated.

Senator **Heinz**. The February 22 memorandum indicates that employment level reductions have been made possible by performance and efficiency improvements at the various shipyards. Please identify the significant improvements made at each of the eight operating yards during the last two years and specifically relate each to the planned reductions by labor category.

Admiral FOWLER. The reduction in employment levels are based on NAVSEA's estimate of the projected workload. The February 22 memorandum gave NAVSEA's estimates only and were for preliminary planning. Since the actual number of reductions has not been determined yet, any relationship between improvements and planned reductions by labor category cannot be identified.

Senator HEINZ. Have direct operations support and other indirect staff positions at the Navy Shipyards been significantly over staffed during the past several years?

Admiral FOWLER. The naval shipyards have not been significantly over staffed during the past several years.

Senator HEINZ. Enclosure one to the February 22 memorandum includes a draft personnel reduction plan by shipyard. It appears that this initial proposal includes layoffs which vary largely in amount and percentage, with little or no correlation to current staffing levels. Please explain the basis on which these preliminary reductions were made.

Admiral FOWLER. Actual reduction figures for each naval shipyard have not been determined. Preliminary reduction planning figures were based on NAVSEA's estimate of each naval shipyard's current and projected ship repair workload and projected improvements in efficiency and productivity.

Senator HEINZ. If preliminary reductions were based on past performance and efficiency improvements, it must be assumed that Philadelphia and Long Beach have done very well in that regard. Why would the Navy tend to reduce employment and in effect, penalize those installations which have apparently done the most to better performance in a cost effective manner?

Admiral FOWLER. The presumption that the preliminary reduction planning figures is based on past performance and efficiency improvements is incorrect. They are based on NAVSEA's estimate of the project workload.

Senator HEINZ. Please provide details of your cost analysis, by yard, which identifies the expected annual savings in relation to the annual cost of implementing reductions.

Admiral FOWLER. The cost savings that may result from these actions are unknown at this time.

Senator HEINZ. What impact will personnel reductions at the Philadelphia Navy Yard have on the current and planned workload schedule and the prospect for future work?

Admiral FOWLER. It is COMNAVSEA's goal to maintain and even improve naval shipyard readiness and to maintain current projected schedules for ships undergoing repairs, maintain their quality, and allow overhaul duration to be determined by the shipyard's most effective working tempo to control costs. Where these goals cannot be achieved simultaneously, consultations with Fleet Commanders will be used to make recommendations to the Secretary of the Navy. The Navy's long range ship depot maintenance program has a normal workload projected for Philadelphia Naval Shipyard.

Senator HEINZ. What percentage of planned reductions could reasonably be absorbed by attrition?

Admiral FOWLER. The Navy anticipates that a substantial percentage of any required reduction can come from attrition.

Senator COHEN. The subcommittee will stand adjourned.

[Whereupon, at 11:47 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

THURSDAY, MARCH 7, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

FORCE PROJECTION PROGRAMS

The subcommittee met in open session, pursuant to notice, at 10 a.m., in room SR-232A, Russell Senate Office Building, Senator William S. Cohen (chairman) presiding.

Present: Senators Cohen and Wilson.

Staff present: Gordon G. Riggle, Mark B. Robinson, José E. Martinez, professional staff members; Russell C. Miller, research assistant; and Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Bernard R. Toon, assistant to Senator Quayle; Mark J. Albrecht, assistant to Senator Wilson; DeForest Hamilton, assistant to Senator Denton; John Rasmussen, assistant to Senator Gramm; Mary A. Shields, assistant to Senator Stennis; and Jeffrey B. Subko, assistant to Senator Exon.

OPENING STATEMENT BY SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. The subcommittee will come to order.

Good morning. Today we are going to hear testimony on force projection programs, which encompass airlift, sealift, amphibious ships, and landing equipment.

On behalf of the subcommittee, I want to welcome all of our witnesses today. From the Air Force, we have Secretary Cooper, Assistant Secretary of the Air Force for Research, Development, and Logistics; and General Russ.

I am told, General Russ, this is your 39th birthday, today, and I want to commend you for reaching that young age; and General Harbour.

From the Navy, we have Vice Admiral Metcalf, who was here just 2 days ago, making his second appearance on Capitol Hill, and also Captain Kesteloot.

From the Army, General Russo and General Graves. And from the Marine Corps, General Godfrey.

At Tuesday's procurement hearing I talked with the Navy witnesses about my concerns for the budget in the outyears, and I do not think that the defense guidance, which calls for an 8-percent real growth increase in fiscal years 1987 and 1988 is realistic, particularly after the Budget Committee action this week.

It is clear that the Federal budget deficit is a long-term problem, and consequently I would expect that Congress is going to take a longer view of Federal spending, which will likely include paying more attention to the Defense Department's 5-year defense plan.

The Budget Committee's action with regard to the Defense budget only reinforces my sense that some fundamental rethinking of our future spending is going to be in order. It is within that context that I think we have to consider today's testimony on force projection programs.

We will have a number of other members who will be coming. At that time I will yield to them for any statements they might care to make. But pending that, let us begin with Secretary Cooper of the Air Force, and we will then hear from the Army, and finally from the Navy and the Marine Corps.

Secretary Cooper?

STATEMENT OF THOMAS E. COOPER, ASSISTANT SECRETARY OF THE AIR FORCE FOR RESEARCH, DEVELOPMENT AND LOGISTICS, ACCOMPANIED BY GENERAL RUSS AND GENERAL HARBOUR

Dr. COOPER. Thank you Mr. Chairman.

You know, we are often criticized in the Defense Department as not being able to work together jointly, and I want to assure you today we are here united. We are united by a common concern. That is, the threat to our budgets. [Laughter.]

We are prepared to go forward in force. We do have a large slate of witnesses, so I will make my opening remarks brief.

We are here for the Air Force to discuss our airlift enhancement program. General Russ and I have a prepared statement that I would like to, in the interests of time, submit for the record, if I might.

Senator COHEN. That will be included.

Dr. COOPER. I would like to take a few minutes and give you a brief overview of where we are in our program. Before I do that, I would like to introduce, as you mentioned in your opening remarks, General Harbour who is behind us. General Harbour is the program manager for our C-17 Program. He also has had a wealth of experience in many big airplane programs, the stretch C-141, the C-5, some 9 years of experience. So we brought him as our expert in the booth to handle some of the tough questions if you get into programmatic details.

Last year, Gen. Tom Ryan, the Commander-in-Chief of the Military Airlift Command, and General Mahaffey from the Army, testified on the operational requirements for our enhanced airlift program. I am not going to take a lot of time to talk about that. General Russ will talk about it briefly in his remarks. We are here to talk specifically, at your request, about the programmatic details of our airlift enhancement program.

AIRLIFT PROGRAM

Before General Russ starts, I would like to make the following observations: The core of our airlift enhancement program consists of four basic elements. As you are well familiar, we are procuring an additional 50 C–5s to augment the 77 C–5s that we currently have in our inventory.

The second element is, we are procuring 60 KC–10s. We are modifying 19 747s to go with the one DC–10 we currently have in our CRAF enhancement program. And of course the fourth element is, we are developing, and ultimately we plan to procure a modern-technology airlifter. That being the C–17. I would like to say just a brief word about each one of those elements.

We are now in the fourth year of a 5-year C–5B procurement effort. I am happy to report to you that we are on schedule. We have a fixed-price contract, and we plan to take first delivery of the first C–5B in December of this year. Next year represents the last year of that procurement.

We are also in the next-to-the-last year of our KC–10 procurement program, and the last time I checked we have now accepted delivery of 29 of the KC–10s. That is out of a total of 60. So that program is indeed moving along very well.

Of the 19 additional aircraft that we plan to add to the CRAF enhanced fleet, through prior year funding we have now funded 14. This year represents the last year of that effort, and our request is for five.

And of course the last, and near-and-dear to our heart, the last element of the airlift enhancement program is the C–17. We have just received approval from Secretary Weinberger to initiate full-scale engineering development; and that is after several turbulent, sometimes controversial years about whether or not we should go forward with the C–17.

I want to assure you that the C–17 is extremely high on our list of priorities. We believe we have a well-structured program that is time-phased to start to ramp up in procurement as the C–5B program draws down; and it truly represents our modern technology airlifter of the future. We seek support in our efforts to go forward with full-scale development, and to ultimately begin procurement.

General Russ is going to discuss all of these programs in greater detail, Mr. Chairman, in his briefing. And as questions arise, I would like to encourage our Army, Navy, and Marine Corps colleagues to join in, to the extent that our programs might impact on their operational requirements, to give their perspective.

This is the first opportunity that General Russ and I have had to appear before your subcommittee, and we look forward to it. I just want to assure you that we have a good story to tell you on our airlift enhancement program. It is on track. It is very well funded in our budget. And if we can keep it on course and keep the momentum that we have right now, it is going to give us a very greatly improved mobility posture in the future.

Mr. Chairman, with those brief opening remarks and with your concurrence I would like to turn it over to General Russ to give an overview briefing.

[The prepared statement of Dr. Cooper follows:]

PREPARED STATEMENT OF HON. THOMAS E. COOPER, ASSISTANT SECRETARY OF THE AIR FORCE, RESEARCH, DEVELOPMENT AND LOGISTICS, AND LT. GEN. ROBERT D. RUSS, DEPUTY CHIEF OF STAFF, RESEARCH, DEVELOPMENT AND ACQUISITION, U.S. AIR FORCE

Mr. Chairman and members of the committee: We appreciate the opportunity to appear before you today to discuss the Air Force's force projection program.

We believe there is little doubt that force projection is essential in providing an adequate defense of the nation's vital interests. The increasing threats of foreign expansion and terrorist activity around the world serve as vivid reminders that we are vulnerable to hostile activity and must be able to respond quickly when and where needed. Forces that cannot be deployed in a timely manner are of little value in deterring a conflict or in winning should deterrence fail. Forces prudently applied in the right location at the right time can make the difference between holding a conflict at a low level or even avoiding it versus a potential major escalation. To do this we must have adequate rapid force projection capability.

The economic and political situations which exist today make it difficult to station troops and equipment globally, wherever we need them. For this reason, we must be able to rapidly deploy forces from bases in the continental United States to a potential trouble spot and sustain them there. To meet force projection requirements, the Department of Defense has developed a strategy based on a mix of United States based and forward deployed forces. Inherent in this strategy is the requirement to rapidly project and sustain a balanced military force on a global basis. These mobility forces provide the link between force structure and capability.

A balanced mobility program takes advantage of three basic components: airlift, sealift, and prepositioning. Airlift is fast and flexible, but inherently has a limited capacity. Sealift has a large capacity, but is slower and seaport dependent. Prepositioning reduces overall long range movement requirements, but has limited flexibility and higher vulnerability. The three components of the mobility triad are complementary. Maximum capability is obtained by balancing the benefits of each component with the type of combat forces to be lifted.

Airlift is the only mobility element that has the responsiveness and flexibility to meet the immediate movement needs in the critical early days of a conflict. Airlift is a primary means of moving material forward once sealift reaches its destination port. Marrying-up prepositioned equipment with the appropriate units is also accomplished by airlift. These requirements place a high demand on airlift resources and highlight the variety of tasks airlift performs. It is these facts that make airlift a key determinant in combat capability and enable us to meet overall force projection requirements.

The current airlift system cannot meet existing and forecast requirements to deliver combat forces rapidly to potential conflict areas. The existing imbalance between forces to be moved and the wartime airlift capability is well documented. All recent mobility studies have concluded that airlift delivery capability must be increased. The deficiency in wartime capability is significant and involves both the quality and quantity of airlift available. Intertheater airlift capability is less than half the minimum level of 66 million ton-miles per day recommended by the Congressionally Mandated Mobility Study. Even after programmed procurement of C-5Bs, KC-10s, Civil Reserve Air Fleet Enhancement and additional spares, airlift capability will remain approximately twenty-five percent below the minimum goal. We require more intertheater airlift if we are to realize the combat potential of our conventional ground and air forces.

To address this shortfall, the Air Force has laid out a long term strategy for enhancing our airlift capability. This plan is recorded in two documents, the USAF Airlift Master Plan (Sep 83) and the Total Force Plan (Sep 84). The Airlift Master Plan defines an airlift force structure that balances validated requirements, military utility, operating costs, manpower constraints, force stabilization, and force modernization to achieve the greatest benefits at the lowest cost. The Master Plan focuses on the need to meet airlift shortfalls and to modernize airlift forces. Using this plan as a basis, the Airlift Total Force Plan defines an airlift force mix that balances readiness, force sustainmenet, and cost effectiveness. It focuses on the need to meet Congressional guidance on increased participation of the Air Reserve Forces and modernizing these forces.

The Airlift Master Plan is built on completion of near term capability enhancements. Through fiscal year 1987, we will have funded 50 C-5Bs, 60 KC-10s and modified 19 B-747s for the Civil Reserve Air Fleet. These programs will increase intertheater capability by some 14 million ton miles per day. Full funding of C-5 and C- 141 spares along with the completion of the C-130 and C-5A wing modification programs will increase capability and extend the service lives of these valuable assets well into the next century. Our projected funded intertheater airlift capability in fiscal year 1987 is 47 million ton miles per day.

We would now like to advise you of where we are on the C-5 demonstration program. As you are aware, fiscal year 1985 Authorization language directed a demonstration of C-5 capabilities. We evaluated those items which offered the greatest potential for increased capability, aircraft backing and enhanced gross weight operations. The demonstrations began in November 1984 and were completed in January 1985.

Results of the demonstration will undergo a thorough technical and operational assessment with a final report available this spring.

Our long range program to meet airlift requirements is the C-17. The Secretary of Defense signed a decision memorandum on 15 February 1985 approving the start of full-scale development. The program is planned to begin production in fiscal year 1988 with a fiscal year 1992 initial operational capability.

The C-17 will provide the last increment of intertheater capability to reach the 66 million ton-miles per day minimum level recommended in the Congressionally Mandated Mobility Study. The aircraft enhances our intratheater capability and provides critically needed force structure modernization. The C-17 directly addresses deficiencies in capability, military utility, operating cost and manpower.

The largest part of the life cycle cost of a weapon system is associated with manning and operation. The C-17 program was specifically completed to make operation and support costs a major evaluation criteria. The investment in acquisition cost by making reliability and maintainability, cost per hour and manpower requirements primary considerations will save billions of dollars over the life of the aircraft. As stated in the Airlift Master Plan, the acquisition of 210 C-17s would cost some $16 billion less and require nearly 15,000 fewer personnel to operate when compared to alternatives that provide equivalent capability. Any consideration or comparison of costs must include operation and support in the analysis. It would be of little use to acquire a system that was cost prohibitive to own and operate.

The C-17 will be able to accomplish the total airlift mission. It can effectively operate in both the intertheater and intratheater environments. The C-17 can carry all classes of cargo including outsize and deliver equipment and personnel by either airland or airdrop. It will also have an outsize low altitude parachute extraction capability which is not available in the current force. We have incorporated current, proven technology and a simply design to produce an aircraft which best meets our airlift requirements.

Another benefit of the C-17 is force modernization. The capability lost through necessary retirement of some older aircraft is replaced by the C-17. The effect on force structure stability while maintaining adequate airlift capability during this transition is minimized by acquisition of a multi-role aircraft, the C-17.

We believe that our plan to add C-5Bs, KC-10s, and cargo carrying Civil Reserve Air Fleet aircraft now, followed by the C-17, is the most efficient way to increase capability while considering force structure, personnel, and fiscal realities. Our goal is to provide an effective mobility force to meet United States force projection requirements into the next century.

Mr. Chairman, this concludes my prepared statement. We will be happy to respond to any questions you may have.

Senator COHEN. General Russ?

General RUSS. Thank you, Mr. Chairman. It is nice to be back again.

What I thought I would do this morning is give a short overview, and then be prepared to answer some of the questions you may have.

This initial slide shows three logos. [Slide deleted.] I have done this to highlight the contribution our Air National Guard and our Air Force Reserves make to our airlift capability. I will highlight that contribution as we get into the briefing.

FY 1986 AIR FORCE BUDGET PRIORITIES

FY 86 priorities reflect commitment to "stay on course" and continue addressing improvements most vital to combat capability

- Modernize strategic forces (offensive and defensive)
- Improve readiness and sustainability of general purpose forces
- Increase airlift capability
- Modernize and expand tactical forces

and

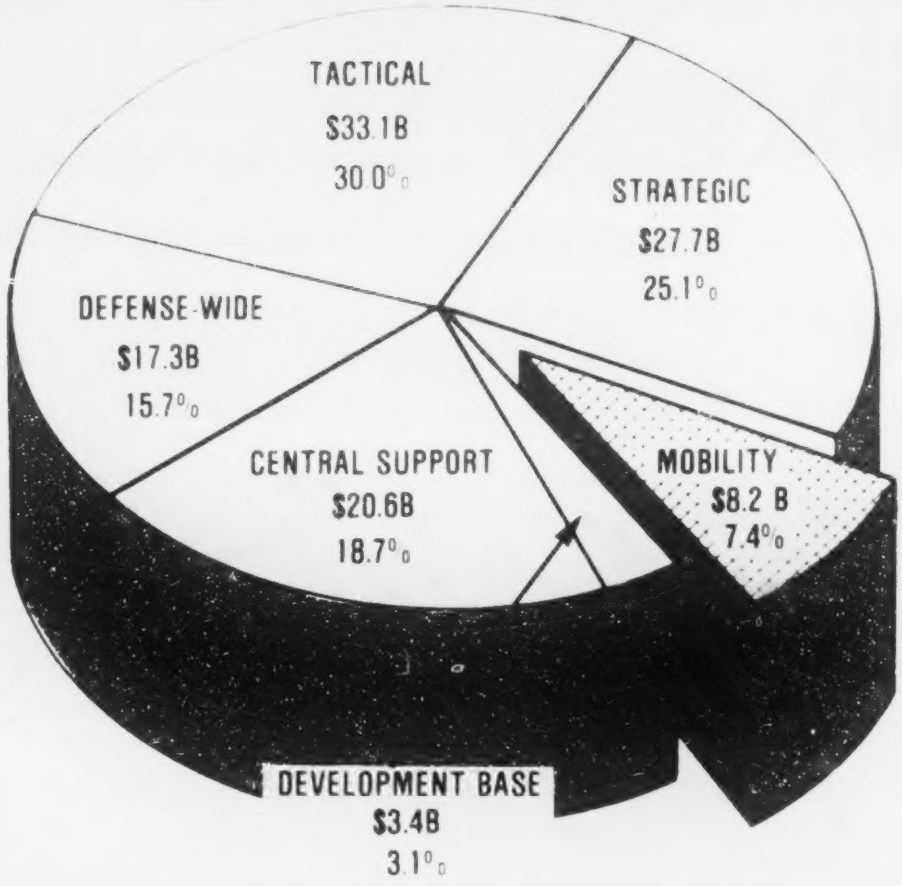
- Improve ability to operate efficiently and effectively in space

Let me start off with the priorities, the Air Force priorities that we established to develop our budget. They reflect our commitment to stay on the course that we laid out last year. As you can see, the airlift priority is third, behind our strategic modernization effort and our readiness and sustainability.

Now I would be remiss if I did not mention that overriding these priorities are the need to take care of our people, and certainly they must come first.

USAF FISCAL YEAR 1986 BUDGET REQUEST BY MISSION AREA

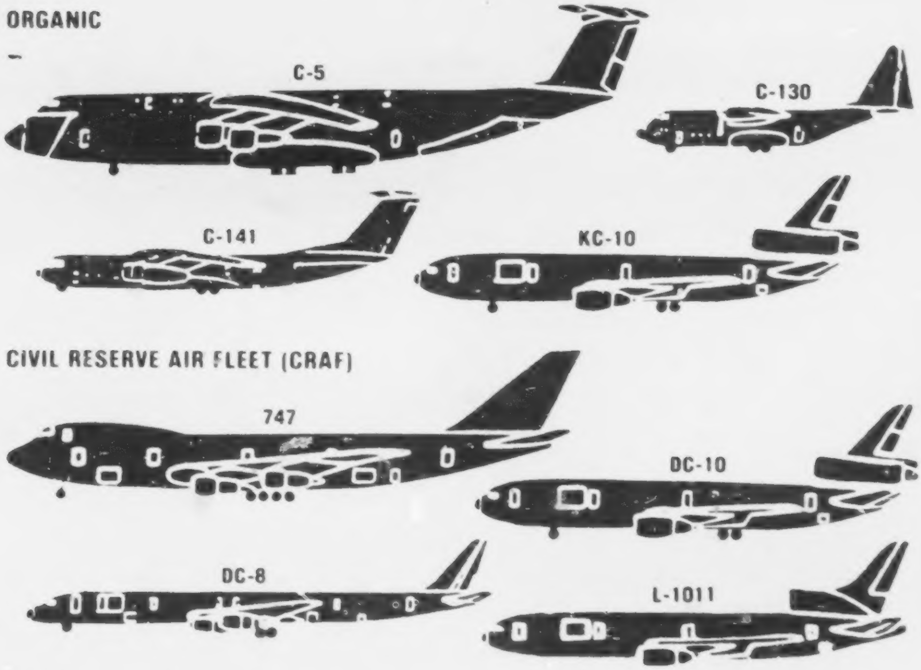
TOTAL $110.3 BILLION



Now with these priorities in mind, our fiscal year 1986 budget request is for $110.3 billion. That represents a 5.8 percent real growth. Our first priority is our strategic forces, which consume about 25 percent of the budget. The tactical forces consume 30 percent, and that is the largest section of our budget. Defense wide, some 15.7, which includes our space launch support, communications, and some classified programs.

Central support includes our PCS (Permanent Change of Station) travel, our training for our pilots, and some other skill training. Development base of course is our technology base. And our mobility section, which is of interest today, is $8.2 billion or some 7.4 percent of the budget. That is up about $700 million over last year. That $8.2 billion is used to develop and procure new aircraft, as well as to operate our current force, which is composed of the aircraft which are shown on this slide.

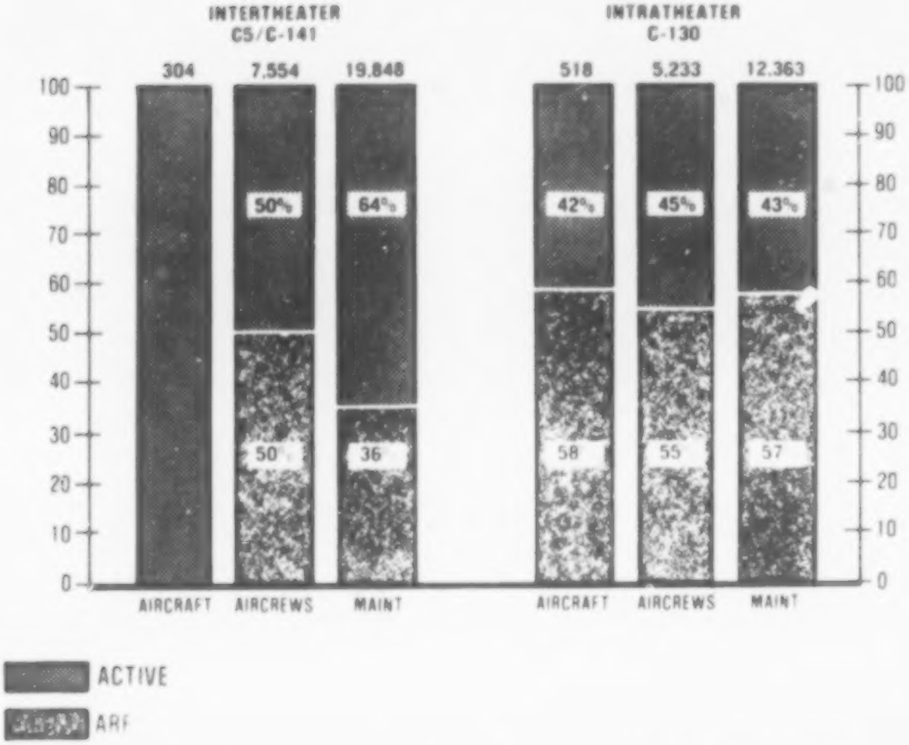
CURRENT U.S. AIRLIFT AIRCRAFT


ORGANIC
C-5
C-130
C-141
KC-10
CIVIL RESERVE AIR FLEET (CRAF)
747
DC-10
DC-8
L-1011

There are two types. These are organic and our civil reserve air fleet. In our civil reserve air fleet, we have some 376 airplanes of the types indicated on this slide.

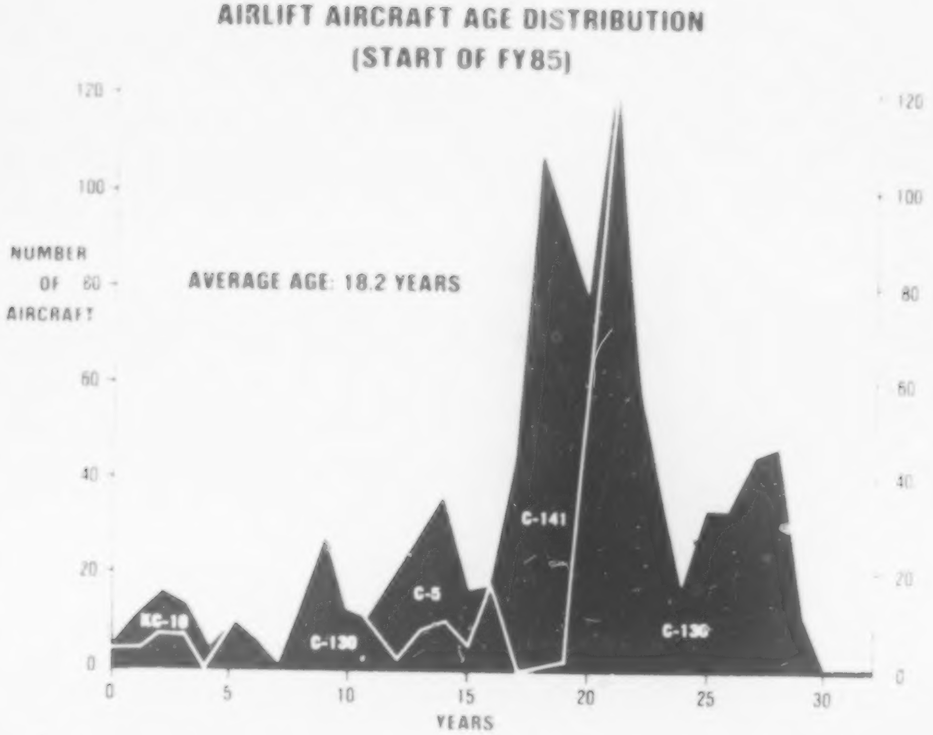
Organic to the Air Force, we have some 850 airplanes. Currently, 70 C-5s, 234 C-141s, 29 KC-10s, and about 518 C-130s. Over 50 percent of those 130s are actually in our reserve forces, and this slide shows that.

AIRLIFT
AIR RESERVE FORCE CONTRIBUTION
(PERCENT OF TOTAL FORCE)



This shows the contribution of our reserve forces to the airlift contribution. Now in the intratheater, or the C-130 force, about 55 percent of the aircrews, aircraft, and maintenance personnel are in the reserve forces.

In the intertheater, about 50 percent of the aircrews are in the reserve, some 36 percent of the maintenance personnel, but all of the aircraft are in the active forces. Now that is not exactly right, because we have just recently transferred our first C-5 to the reserve forces, and the reserves will continue to take a larger portion of the intertheater airlift as we continue over the next decade.

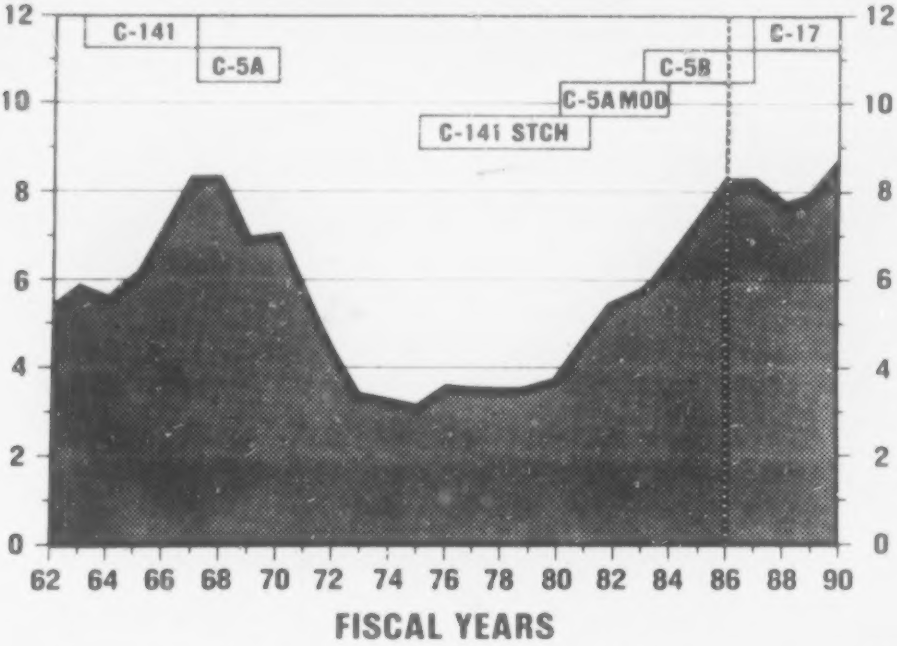


AIRLIFT AIRCRAFT AGE DISTRIBUTION
(START OF FY85)

One way to look at that force is to look at the age. This chart shows the age distribution of our aircraft. The average age is 18.2 years. The mainstay of the tactical airlift fleet, the C-130, is over 20 years old; and the C-141 is not far behind. Most of these were bought in the 1960s, and that can be seen on this next chart on our funding.

AF MOBILITY TOA

CONSTANT FY86 $ BILLIONS



In the early 1960s, from 1964 actually to 1970, we spent some $50 billion in 1986 dollars on our mobility forces. In 1967 and 1968 alone, we spent $16.6 billion, as compared to the $8.2 billion that we have in this year's request. There was a lean period during the 1970s, and then from 1980 on we have seen an increase with the C-141 stretch, the C-5A wing MOD, the C-5B, and ultimately the C-17.

Now the C-17 is being developed and procured to increase our overall airlift capability, and to replace our older aircraft as they reach the end of their useful life.

Today, we have C-5s, C-141s, KC-10s, and the CRAF to provide our intertheater airlift capability. As you know, the Congressionally Mandated Mobility Study that was conducted a couple of years ago established a goal of 66 million ton-miles per day. With our fiscal year 1985 funding, we will have some 41 million ton-miles per day capability, and as we go to 1990 we should have a total of 50. That will still leave us approximately 16 million ton-miles per day short, which we will attain in the 1990s.

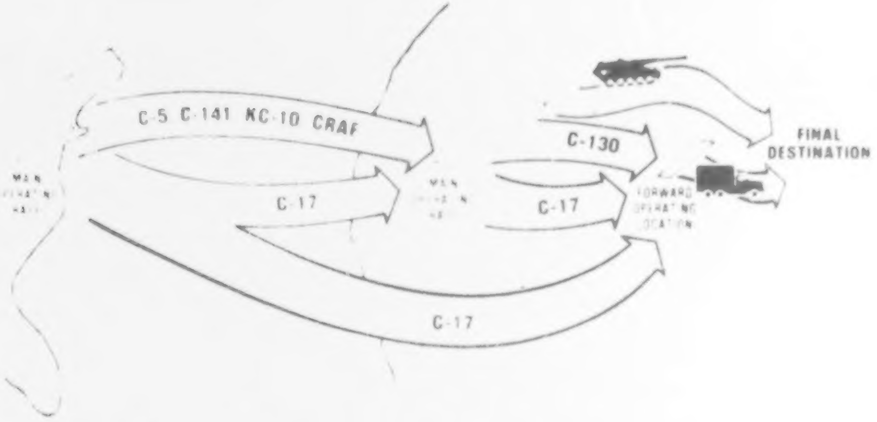
Looking at our intratheater airlift, the goal there is 13,500 tons per day, and it is done entirely by our C-130 fleet. However, the study that was requested by the Congress last year on our worldwide intratheater mobility is ongoing. That should be done in February of next year, and I am sure this figure of 13,500 tons per day will be affected.

AIRLIFT OPERATIONS

←INTERTHEATER→ ←INTRATHEATER→

GOAL:
66 MILLION TON-MILES/DAY

GOAL:
13,500 TONS/DAY


C-5 C-141 KC-10 CRAF
MAIN OPERATING BASE
C-17
MAIN OPERATING BASE
C-130
C-17
FORWARD OPERATING LOCATION
FINAL DESTINATION
C-17

Now to help remedy both the inter- and intratheater shortfall, we are requesting funds to develop and procure the C–17. The C–17 will be able to not only deliver cargo from the main operating bases to main operating bases, but also from main operating bases to the forward operating locations as shown on this slide.

In essence, the C–17 will truly be an inter- and an intratheater airlift aircraft.

AIRLIFT AIRCRAFT
CARGO CAPABILITIES

	INTERTHEATER			INTRATHEATER
	C-141	C-5	C-17	C-130
NON-OUTSIZE/CARGO	●	●	●	●
OUTSIZE CARGO		●	●	
OUTSIZE AIRDROP			●	
LAPES			●	●
COMBAT OFFLOAD			●	●
NO. OF PALLETS	13	36	18	5

This chart compares the C-17 with the other aircraft in the inter- and intratheater fleet. All of them will do the non-outsized cargo job. The outsized cargo will only be done by the C-5 and the C-17. Outsized airdrop will only be done by the C-17.

The low altitude parachute extraction is done by the C-17 and the C-130. Combat offload is only done by the C-17 and the C-130. Combat offload is only done by the C-17 and the C-130. When you look at the pallet capacity, the C-17 has more capacity than the C-130 or the C-141, and about half the capacity of the C-5.

However, the C-5 occupies a very important part of our overall force. It is the only aircraft in the inventory that can carry the outsized cargo, and it can carry over 260,000 pounds of cargo.

C-5B

- INTERTHEATER CARGO AIRCRAFT
- PROVIDES ESSENTIAL AIRLIFT CAPABILITY AND REDUCES SEVERITY OF CURRENT AIRLIFT SHORTFALL
- ENABLES RAPID INTERTHEATER MOVEMENT AND SUPPORT OF U.S. PROJECTION FORCES
- FY 86: PROCURE 16 AIRCRAFT

Today, the C-5 is absolutely essential in meeting our requirements to move the men and equipment anywhere in the world on very short notice. Our current plans are to buy 50 C-5Bs. We will add those to the 77 A models we have for a total fleet of 127. The 50 C-5B force will add some 7.5 million ton-miles per day to our capability by 1989. As C-5Bs enter the active inventory, C-5As will transfer to the Air Reserve Forces. The first C-5As are going to the reserves at Kelly AFB as mentioned before, to be followed by Air National Guard C-5s to Stewart Air Force Base in New York and Westover Air Force Base in Massachusetts.

C-5B

($ IN MILLIONS)

	FY 84 & PRIOR	FY 85	FY 86	FY 87	TO COMPLETE	TOTAL
WPN SYS PROC	2040.0	1576.6	2268.1	2196.8	15.8	8097.3
QUANTITY BUY	5	8	16	21	0	50
DELIVERIES	0	0	7	11	32	50

FY 86
WPN SYS
PROC REQUEST

$ 2268.1

+ WEAPON SYS	2193.6
- ADV BUY (PY)	251.5
+ ADV BUY (CY)	326.0

SCHEDULE

FSD CONTRACT	DEC 82
DELIVERY OF FIRST AIRCRAFT	DEC 85
50TH AIRCRAFT DELIVERED	FEB 89

In fiscal year 1986, we are asking for $2.3 billion to buy 16 C-5s. We have a firm fixed-price contract. Last year we estimated the bill for fiscal year 1986 would be $2.4 billion. It is down this year some $200 million, and that is the result of several things.

We have reduced the total program some $440 million because of inflation, $160 million in fiscal year 1986. We have also reduced additional amounts in many years because of other factors such as better management of the program. So I am happy to report that the program is on course, and is costing less than we initially estimated.

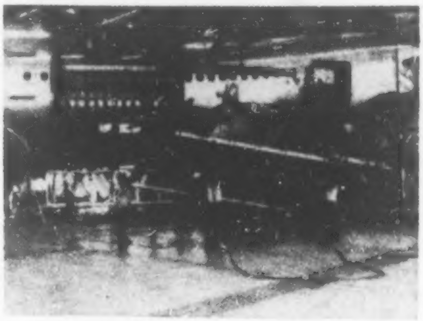
I might mention that we will get the 50th aircraft in February 1989.

One moment on our CRAF enhancement program, which is composed of 747s, and one KC-10.

CRAF ENHANCEMENT MODIFICATIONS

($ IN MILLIONS)

	FY 84 & PRIOR	FY 85	FY 86	FY 87	TO COMPLETE	TOTAL
MODIFICATION PROC	341.9	128.9	164.9	0	0	635.7
QUANTITY BUY	11	4	5	0	0	20
DELIVERIES	1	2	6	8	3	20



FY 86
MODIFICATION
PROC REQUEST

$ 164.9

- MOD 5 B 747s

SCHEDULE

• CONTRACT AWARD	SEP 83
• FIRST AIRCRAFT IN MOD	FEB 85
• FIRST AIRCRAFT DELIVERED	JUN 85
• LAST AIRCRAFT DELIVERED	FEB 88

In the 1986 budget, we have $164 million to procure, or I should say to modify the last five aircraft. This will add 154,000 ton-miles per aircraft per day of bulk and oversize capability. The total number of aircraft in the CRAF enhancement program will be 20. And like I said before, this will be the last year for funding for that program.

Now let me shift for a minute and talk about the C-17. The request for the C-17 is $453 million this year.

C-17

(S IN MILLIONS)

	FY 84 & PRIOR	FY 85	FY 86	FY 87	TO COMPLETE	TOTAL
RDT&E	118.7	123.3	453.7	624.8	2694.9	4015.4
WPN SYS PROC	0	0	0	244.9	31721.8	31966.7
QUANTITY BUY	0	0	0	0	210	210
DELIVERIES	0	0	0	0	210	210

FY 86
RDT&E REQUEST
$ 453.7

• AIR VEHICLE	376.8
• TEST & EVAL	21.3
• PEC SUPPORT	17.6
• OTHER	38.0

SCHEDULE

• MILESTONE II DECISION (FSD)	FY 85
• PRODUCTION START	FY 88
• IOC	FY 92

We start procurement actually next year. Next year's request will be for $244 million, and that will go for long lead procurement of the first two aircraft.

If you look at the total R&D dollars up there, you will see that it is about $4 billion. We have had a series of cost estimates on the C-17. They range from $4.3 billion, to $4 billion, down to $3.9 billion. Our latest and most up-to-date cost figure was $3.9 billion. That was not available when we made the budget, but it does not impact the fiscal year 1986 figure; but it does impact the out-year figures.

Senator COHEN. What is your estimate, in terms of then-year dollars, for the cost of the C-17?

General RUSS. The total cost of the C-17, R&D and procurement, will be approximately $36 billion. That does not count spares and military construction, sir. If you add spares, it is a little under $2 billion. I think the figure is $1.8 billion. And a little under $100 million for military construction. The total of that is around $38 billion. That is for 210 aircraft.

Senator COHEN. My understanding is that Lockheed has made you an offer, which you may or may not be able to refuse, on a fixed-price contract for additional C-5s. Is that correct?

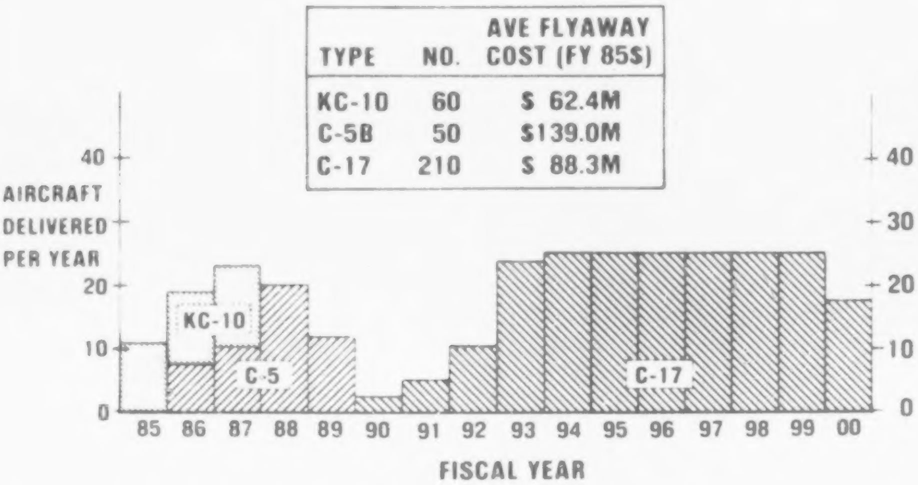
General RUSS. Yes sir, they have. Their contract is for—or their proposal is for—us to buy additional C-5s at roughly the same price that we are paying for them now. They have provided us a not-to-exceed price for the next 2 years.

Senator COHEN. And my understanding is that it is about half the cost of what the projected cost of the C-17 would be.

General RUSS. No sir, it really is not. I have a slide at the end that kind of compares those costs that I think would be useful. Certainly it is cheaper than the first C-17, but it is not cheaper than an equivalent C-17 at a later point in time.

Senator COHEN. What are the unit costs of the C-17 going to be? Could you put the chart up so I could look at it?

AIRLIFT AIRCRAFT DELIVERIES



TYPE	NO.	AVE FLYAWAY COST (FY 85$)
KC-10	60	$ 62.4M
C-5B	50	$139.0M
C-17	210	$ 88.3M

General RUSS. These are total flyaway costs, and they are all in fiscal year 1986 dollars. So it is an apples-to-apples comparison. It uses the total buy. You can see the comparison there between the KC-10, the C-5B, and the C-17. Naturally there are different amounts. The number is important.

Senator COHEN. What does it work out to in unit cost? My math is not that good on a quick look.

General RUSS. Those are unit costs. It is $62.4 million for the KC-10; $139 million for the C-5; and $88.3 million for the C-17. Those are all in 1985 dollars. We do that so we can make a valid comparison. Frequently people will take a constant dollar for one program, and a then-year dollar for another program, and we get an erroneous comparison. So I made that comparison because I felt that is was important for the committee to see.

Senator COHEN. How would it work out if you had a then-year dollar cost for the C-17 and a then-year dollar cost for the C-5?

General RUSS. I do not think I have that figure readily available, sir. The then-year dollar for the C-17 would be all the way out to the year 2000. The then-year dollar for the C-5 of course would be out through 1989. So it is a matter of over decades of inflation that would be added to the cost. I can provide that, if your would like.

[The information follows:]

THEN YEAR DOLLARS FOR C-17 AND C-5

The then year average unit flyaway cost that corresponds to the slide numbers shown at the hearing are as follows:

[Dollars in millions]

Type and No.	Average Flyaway Cost (fiscal year 1985 dollars)	Average Flyaway Cost (then year dollars)	Fiscal years procured
C-5B—50	$139.0	$155.4	1983-87
C-17—210	88.3	139.5	1988-98

The reason for the C-17s larger increase when converting from fiscal year 1985 dollars to then year dollars is strictly due to the different years in which the aircraft are procured as shown above.

Dr. COOPER. Mr. Chairman, just if I might make one comment. That is a very difficult comparison, because with the C-5 right now you are essentially comparing 1985 dollars, whereas, on the C-17 we do not start to procure it in numbers until the early 1990's. So you mix apples and oranges.

But what your question does not address is the additional capability that we get with the C-17.

Senator COHEN. I am not questioning the additional capability. What I am trying to figure out is, assuming the Congress does not fund 8 percent annual growth in the next 5 years, what are you going to do? And assuming Lockheed makes you an offer in which they give you a fixed price for additional C-5s and you are faced with budget increases of perhaps only 3 percent, I wonder. Three percent—if the Budget Committee holds, you will have zero real growth this year, and I can guarantee you that even though they talk about 3 percent next year and the year after, the pressure will be on to hold it where it was.

So I am just trying to get some kind of an estimate from you. Assuming that zero percent were to hold, where do you go with the C-17 versus the C-5? I know the battle has been fought before in terms of capability, and I do not question the new capability and versatility of the C-17. What I want to know is, as we are going through this—and we will get into other programs as well—what are you going to do when it comes down to the zero or 3 percent real growth, if you get that?

Dr. COOPER. Mr. Chairman, it is very difficult to predict, or to answer the hypotheticals, but I think what I can tell you is that we are not interested at this time in buying additional C-5B aircraft.

Senator COHEN. So——

Dr. COOPER. We have enough C-5B aircraft in our inventory with 127.

Senator COHEN. So what you may end up with is a reduced buy of C-17s?

Dr. COOPER. That is always a possibility. Of course, that is a decision that, the 210 you do not reach that point until the mid- or late 1990's.

Senator COHEN. Well, if you do that, if you have a lower buy, does that change your unit cost?

Dr. COOPER. It certainly would change your unit cost. But in terms of the budget problem that you are trying to come to grips with right now, it would virtually have to impact on that.

Senator COHEN. Well, it would, because we are talking about today, but it is also setting a precedent for tomorrow in terms of——

Dr. COOPER. Again, I phrase that in terms of the current budget situation, that over the next several years we will be primarily focusing on the R&D and the early startup costs associated with the C–17. So you really do not realize any budget savings, if you will, by cutting numbers of aircraft until the mid-1990's. The upfront costs are all nonrecurring and you would have to spend those whether you buy one C–17 or 210 C–17s.

KC-10A

- TANKER/CARGO AIRCRAFT
- USES WORLDWIDE COMMERCIAL SUPPORT SYSTEM AND EXPLOITS PREVIOUS COMMERCIAL AIRCRAFT DEVELOPMENT
- AUGMENT PRESENT AERIAL REFUELING AND AIRLIFT FORCES TO PROVIDE LONG RANGE REFUELING AND AIRLIFT FOR GENERAL FORCE PROJECTION
- FY 86: PROCUREMENT CONTINUES

General RUSS. Let me move quickly and say a few words about the KC–10. As you know, it is both an airlifter and a tanker. And although we cover this in the mobility section, the actual funding in the Air Force is covered in the tactical total obligating authority, but it is primarily procured to support our general purpose forces.

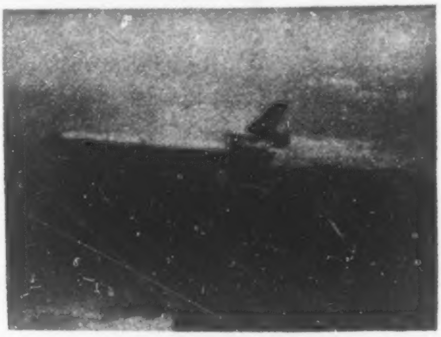
As you know, we use the worldwide support system that the commercial aircraft use because that provides us access to spares. We have been very, very pleased with the KC–10. Our mission-capable rate is over 90 percent, which I think is almost unheard of. Let me give you an example that I think is useful.

Back in 1979, we deployed 12 aircraft from Langley Air Force Base to Saudi Arabia. We took 115 tons of equipment and 209 people. It took us 16 KC–135s, 3 C–141s, and 2 C–5s, and took us 2 days. Today, with the KC–10, we can do that with 6 KC–10s, no 141s, no C–5s, and do it in half the time or in 1 day. So it really is a superb asset, and we are very, very pleased with that.

KC-10A

($ IN MILLIONS)

	FY 84& PRIOR	FY 85	FY 86	FY 87	TO COMPLETE	TOTAL
WPN SYS PROC	2,506.8	564.9	447.0	124.1	0	3,642.8
QUANTITY BUY	32	8	12	8	0	60
DELIVERIES	25	11	12	12	0	60



FY 86
WPN SYS
PROC REQUEST
$ 447.0

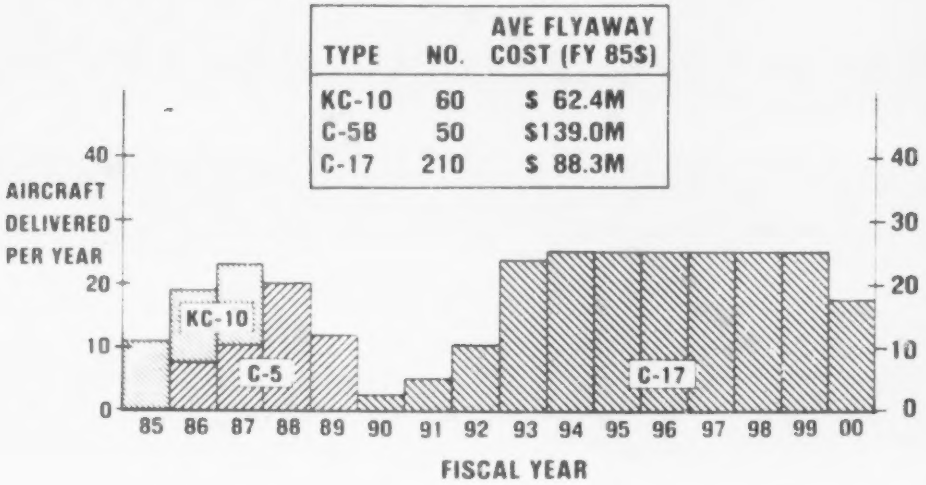
• WEAPON SYSTEM	763.0
• ADV BUY (PY)	-524.2
• ADV BUY (CY)	208.2

SCHEDULE

- LAST DELIVERY SEP 87

As you know, the Congress approved a multi-year buy on the KC–10 back in 1982, and in 1983, 1984, and 1985 we bought 8 per year. In 1986 we are asking for $447 million to buy 12. Then we terminate it in 1987 with the last 8. That multiyear procurement of 44 added to the 16 we had originally will give us a total fleet size of 60 airplanes.

AIRLIFT AIRCRAFT DELIVERIES



Put the last slide up, please. I bring this slide up—this is my last chart—because I just wanted to mention one thing. You can see how we have phased the mobility procurement over the timeframe. These are aircraft deliveries where KC-10s are coming off the line now. Our first C-5 is delivered in December of this year, and our first C-17 in December of 1989. The program of the C-17 is not structured based on technology: it is structured based on a smoothing to be able to provide appropriate funding within the other priorities of the Government, and within the Department of Defense. In that little gap in the center, a large part of the money spent in that time will be for R&D for the C-17.

So we have taken fiscal realities into consideration as we have developed this overall mobility budget.

Senator COHEN. Just for the record, General, my understanding is that Lockheed's proposal would provide additional C-5s at a cost of $97.5 million each in 1984 dollars, and a 1988 buy I think of $94.5 million each. Is that correct or not?

General RUSS. I think that is about correct, sir. They gave us not-to-exceed prices, so we would have to sit and negotiate that. It does not count Government costs and everything else involved, but I think that is in the ballpark.

Senator COHEN. Could you at least clarify for me what the projected unit cost would be for the C-17? I am laboring perhaps under the illusion that it was in the neighborhood of $200 million per aircraft.

General RUSS. Let me give you several figures. First, if you went on base-year dollars—that is what is reported when we sent over the SAR's (System Acquisition Reports) and so forth—the base-year dollar unit cost for the C-17 is $61 million, assuming you buy 210. If you look at 1985 dollars, which is the comparison I made on this chart, it is $88.3 million compared to the fiscal year 1989. And if you extend it to the end of the year 2000 when the last buy is delivered, you come up with a price of $133 million.

So those are the prices, and you can have variations on those, depending on whether you want to talk about program costs, procurement costs, but these are unit flyaway costs, the normal costs that we talk about when we make comparisons.

Senator COHEN. So the figure of $200 million is totally unsupported?

General RUSS. Yes, sir; I don't know how I would get to $200 million.

Dr. COOPER. The way you would get close to $200 million is if you took the $38 billion and divided it by 210. That is something slightly less, but that is in then-year dollars and that includes all the nonrecurring costs, the R&D costs, and the tooling costs.

The costs that we have been quoting to you is after you have sunk those, and you start to produce at efficient rates. But I have heard the $200 million, and the only way I can come close to that is taking $38 billion, which includes all costs at this point, and divide it by 210. That is slightly less than $200 million.

General RUSS. A quick math in my head, if you take $36 billion which was on the C-17 slide, which was $4 billion roughly for procurement, and not count spares which you will have no matter what, and divide that by 210, it comes out to about $170 million. So even that way, I cannot get up to $200 million. So I am really not sure where they came up with that figure, sir.

Senator COHEN. Last year you requested, I think, eight C-5Bs. Did you get the full eight?

General RUSS. Yes, sir; we did.

Senator COHEN. This year you have doubled your request to 16. Again, assuming the zero percent budget figure holds, would you reduce the purchase of C-5s?

General RUSS. Certainly there is flexibility in the C-5 contract. But we only have the flexibility to move two C-5s from 1986 to 1987. We have chosen not to do that, but that is within the contract; we only move two aircraft and if that were done it would not bust the contract. It would save some moneys in 1986, but correspondingly it would increase the budget in 1987 by the amount you save in fiscal year 1986 plus added inflation for 1 year.

C-20 VIP TRANSPORT AIRCRAFT

Senator COHEN. One of the items we did not talk about this morning was the new C-20 VIP transport aircraft. In your statement, the justification is to transport the President, the Vice President, and Cabinet-level dignitaries. The question I have is, how many of these aircraft do you need to transport the President, the Vice President, and Cabinet-level dignitaries?

General RUSS. Sir, the requirement for that fleet of aircraft is 11 airplanes. As you recall, several years ago Congress directed that we phase out the 11 C-140s that we have because they were inefficient, and because of the cost of operating these aircraft.

We ran a competition, and the Gulfstream G-3 won the competition, and we are replacing them on a one-for-one basis. Now not all of these aircraft certainly fly the President and the Vice President, but they do fly various other dignitaries in Washington, and we do have three of them that will be stationed in Europe and they fly in the European environment and down to the Mideast, back and forth. So the requirement is for 11, sir.

Senator Cohen. But again, my understanding is that you have been made a proposal, by the manufacturer, to increase the procurement level. I see you had three last year, and you want to go to how many this year?

Dr. Cooper. Eight.

Senator Cohen. You want to go to eight.

General Russ. We had three, and we went to eight. The reason we did that was we looked at the cost of buying eight at a rate of three in fiscal year 1986, three in fiscal year 1987, and two in fiscal year 1988, the schedule we were on. We recognized that the inefficiencies of doing that, and the fact that we could save approximately $50 million by buying them out in 1 fiscal year—Gulfstream intends to phase down their G-3 line and start a G-4 line.

Therefore, since it was the end of the buy, we could save the Government some $50 million, and we thought it was prudent to do that.

Senator Cohen. And that is an age-old question. Can you afford the bargain?

General Russ. That is true, sir, but we figured we are around $68 million—I may be off a few million—but about $68 million last year we forecast we would spend, and we would have bought three. Now we are saying $169 million, in that vicinity, and we are going to buy eight. So I think the figures speak for themselves. I think that is a much better program.

Senator Cohen. How high does this rank in your airlift program priority? Not high, I would assume. I mean, it certainly does not really contribute to the requirements of Congressionally Mandated Mobility Study.

General Russ. No, sir; but it is kind of hard to pit one against the other.

Senator Cohen. You have to do that.

General Russ. I understand that. I also understand that the Air Force did not have a plan to replace all those aircraft initially, and Congress decided it was the smart thing to do because it saved money. We fully support that. That is the course we have set out to do. Whether you make the decision to buy all eight of them in 1 year or delay that, of course I would assume that would be a fiscal decision. If you look at the total cost of it, I would suggest that probably doing it in this year is the best way to do it, but that is a judgment that the Congress is going to have to make.

Senator Cohen. I am not focusing particularly on the Air Force. I am going to ask the other services as well. We are running into problems where we propose multiyear procurements on a number of systems. They look like good deals.

The problem is, if you look in the outyears, and it is not 8 percent but it is 3 percent, or 2 percent, or 1 percent, and you commit us to a multiyear procurement on any given system, then something has got to give—whether it is a 688, whether it is the DDG-51, Aegis cruisers, or whatever. Those are the kinds of choices we are being forced to make now in trying to anticipate what is going to happen in the future.

The same thing is true here. It is a good deal to buy eight now as opposed to buying three, three, and two, and stretching out the purchase, because you can save money now; but I am a little concerned about what it does in terms of restrictions placed on us by the Budget Committee.

Dr. COOPER. Senator, if I might take a swing at that for a moment, as far as the requirement is concerned, we believe the requirement is firm for 11 aircraft. As far as at what rate we produce those, if our budget is cut, that will be thrown back in the hopper along with everything else.

The precise reason that we went from the three to the eight was, one of the administration's initiatives was to try to buy items at economical production rates. But if our budget gets cut below a certain point, you know what the ultimate outcome of that is. We will probably end up stretching some production lines, and that will have an attendant cost in the outyears.

Senator COHEN. General, you mentioned before about the need to achieve the 66 million ton mile airlift requirement. Looking at the chart you had, you are still 18 million short in 1990. If in fact we hold to 3 percent real growth, are you ever going to get to 66 million ton miles?

General RUSS. Yes, we will, but it will be pushed out further into the 1990's, sir. We have looked at projections, as you might imagine, for all of our programs based on no growth, 3 percent, 5 percent, among others. We looked at them, and in essence it costs more and just stretches it out a little farther.

I think the basic requirement is there, and I do not think anybody doubts that. It is just a matter of combining the priorities with the dollars available and the timeframe.

Dr. COOPER. Senator, just one more point. It is the age-old dilemma. To the extent you take the pressure off the budget this year by stretching production lines, you exacerbate the situation next year. So it is the pay-me-now or pay-me-later situation.

Senator COHEN. I can tell you, it is probably going to be "pay you later."

General Russo, I think we want to switch to you.

JOINT STATEMENT OF MAJ. GEN. VINCENT M. RUSSO, ASSISTANT DEPUTY CHIEF OF STAFF FOR LOGISTICS, U.S. ARMY; AND BRIG. GEN. HOWARD D. GRAVES, DEPUTY DIRECTOR FOR STRATEGY PLANS AND POLICY OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS, U.S. ARMY

General RUSSO. Thank you, Mr. Chairman. General Graves and I appreciate the opportunity to appear before your subcommittee to discuss the Army's strategic mobility posture, and I would also request that my prepared statement be entered in the record.

Senator COHEN. It will be included.

STRATEGIC MOBILITY

General RUSSO. Strategic mobility continues to be one of the Army's primary concerns. The Army is unique in that it must rely on its sister services, the Air Force and the Navy, to meet its global deployment requirements. We have to be prepared to rapidly deploy up to 12,000 miles away from our home stations.

Thanks to the strong support from Congress, the Air Force, and the Navy, there have been notable improvements in the triad of strategic mobility—the airlift, sealift, and prepositioning. However, substantial shortfalls continue to exist in our ability to project the force and sustain it in combat.

For example, our current requirement is to reinforce NATO with 10 divisions in 10 days. Strategic lift and POMCUS shortfalls leave our capability considerably short of that commitment.

Adequate strategic airlift is most critical in the earliest days of war or a crisis. Current projected minimum airlift capability is well short of our requirements, as established in the DOD congressionally mandated mobility study. The resulting shortfall will be reduced significantly with the fielding of the C-17 scheduled for initial operating capability in 1992.

The Army fully supports the C-17 Program which will enhance both our intertheater and intratheater movement capability. The Army expects the C-17 to dramatically improve the movement of forces and sustaining supplies into small austere airfields or drop areas as far forward as our combat brigade rear areas.

The Army and the Navy are working very closely to develop a balanced strategic sealift and cargo offload and discharge system. The Navy's program to convert the SL-7 containership to fast RO/RO ships is on schedule with four currently delivered and the remaining four to be delivered by March 1986. In fact, we have used the SL-7 in the last two Reforger exercises, and they have performed very well.

In addition, the Navy is increasing the number of ships in the Ready Reserve force by acquiring the most militarily useful ships, particularly roll-on/roll-off ships, which are becoming uneconomical to operate commercially. This program is vital to retaining the ships needed by the Army to deploy its heavy equipment.

Other Navy programs, such as the acquisition of flatracks and seasheds, convert containerships into militarily useful vessels capable of carrying the Army's heaviest and largest equipment. Used in conjunction with the 11 auxiliary crane ships in the Navy's program, the modified container ships will be capable of being offloaded in any port environment. These are truly innovative solutions to improving the military utility of the containership.

Another program we have great expectations for is the joint Army/Navy effort to acquire an offshore bulk petroleum discharge capability. This program utilizes commercial technology to demonstrate and then procure single point moorings and pipelines to discharge 1.2 million gallons per day over the shore. This discharge system will give the Navy and Army a common bulk POL discharge capability.

The Army for its part is increasing its cargo offload and discharge capability by acquiring state-of-the-art watercraft; prepositioning discharge equipment; and enhancing the daily offload capability of our terminal service operating companies. Programmed strategic sealift and cargo offload capability will come close to meeting the Southwest Asia requirements by 1990.

Additionally, the Army is constantly looking for innovative ways to reduce strategic mobility requirements. Efforts such as the light infantry division, the use of intermediate staging bases, prepositioning programs, and making equipment transportability features an important part of the development and acquisition cycle, are substantial complementary actions to increase the synergy of the overall deployment system.

I wish to emphasize that the Army's new light division initiative will strengthen our ability to execute war plans. The reduced lift requirements and rapid deployability of the light 10,000 man division will significantly enhance our ability to respond to less risky, but more likely, low intensity conflicts.

The light infantry division will also deploy in response to several other scenarios and is therefore capable of being tailored with an augmenting force of engineer, air defense, aviation, and other combat support and combat service support assets.

In summary, permit me to emphasize again to the committee that your continued support of strategic mobility programs is vital in permitting the Air Force and Navy to increase their capability to meet deployment objectives. These improvements are in fact essential for the Army to retain a strong deterrent posture and to ensure its effectiveness as a global fighting force.

Thank you again for the opportunity to appear before your subcommittee, and provide the Army's perspective on strategic mobility. I solicit your continued support and am ready to answer your questions.

[The prepared statement of General Russo and General Graves follows:]

JOINT PREPARED STATEMENT BY MAJ. GEN. VINCENT M. RUSSO, ASSISTANT DEPUTY CHIEF OF STAFF FOR LOGISTICS, U.S. ARMY AND BRIG. GEN. HOWARD D. GRAVES, DEPUTY DIRECTOR FOR STRATEGY, PLANS AND POLICY, OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS, U.S. ARMY

Mr. Chairman and members of the subcommittee, I am pleased to be here today and have the opportunity to present the Army's views on strategic mobility.

One of the Army's primary concerns is our capability to deploy in support of missions related to the United States global military strategy. Without adequate strategic lift the Army cannot meet its global commitment. We maintain our forces in a state of readiness that allows rapid deployment to all possible worldwide locations to include areas within our hemisphere, to Europe about 4,000 miles away, and to very distant areas such as SWA some 12,000 miles away by sea. Therefore, we depend upon our sister services' lift capability to provide a rapid, flexible response to project Army forces to overseas crisis areas. In the case of Europe, Army forces will reinforce forward deployed units in a potentially high intensity global warfare environment; but, we must also be prepared to meet worldwide low intensity conflicts in austere, bare base environments wherever U.S. interests are at stake.

During the early stages of a conflict, the Army needs rapid, responsive airlift to close its forces on time. Once Army forces are deployed, they require airlift for the immediate resupply of time sensitive, high priority cargo. Additionally, the Army requires airlift for intratheater movement of troops and supplies. We rely on sealift to move the bulk of our combat power and resupply. Shipping can arrive in Europe in 15 to 20 days, but may take as long as 30 to 40 days to a non-NATO area, such as the Persian Gulf.

Past experience indicates sealift will move about 95 percent of the equipment and supplies into the objective area. The Army, therefore, is vitally interested in the health, viability and composition of both organic military and private sector airlift and sealift programs.

The Army's global strategy depends heavily on our ability to move the right forces to the right place at the right time. However, the availability of sufficient airlift and sealift has long been a constraint on the strategic flexibility of land forces. Both the Navy and the Air Force have made significant improvements in their lift programs, but under current programming guidance, shortfalls will continue through FY 90. In the remainder of this statement I will discuss airlift and sealift requirements and our current capability. Then, I will outline what the Army is doing to enhance mobility and improve force closures.

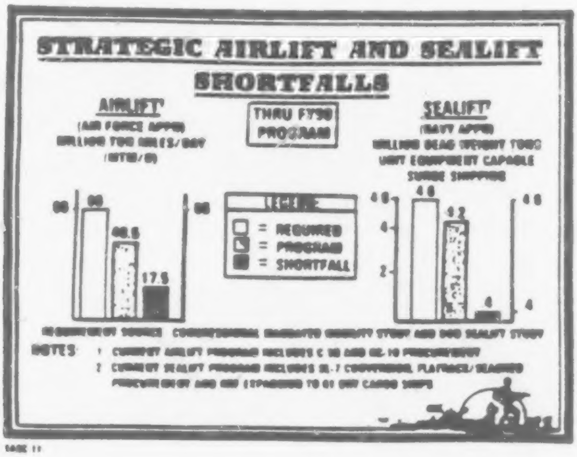
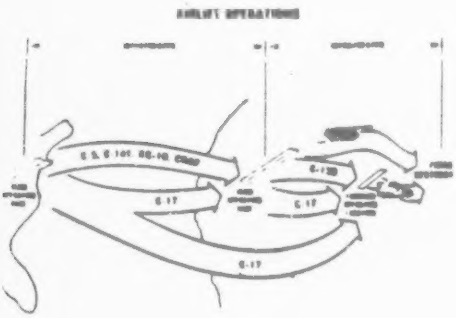
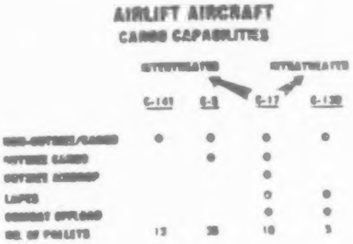


FIGURE 1

In airlift the objective of 66 million ton miles per day will not be achieved until the late 1990s. The C-5B, KC-10, and CRAF enhancement programs will increase our capability from 32.4 million ton miles per day to 48.5 millon ton miles per day as shown in Figure 1. The C-17 is essential to reaching our overall objective of 66 million ton miles per day. Any delay or cancellation of airlift programs would limit the Army's flexibility significantly.

We are currently scrutinizing our intratheather airlift requirement in the Worldwide Intratheater Mobility Study (WIMS). We know intratheater airlift is a vital complement to strategic airlift and sealift. In many remote areas of the world, particularly Southwest Asia, arriving forces must be moved great distances before they can be employed in battle. Road and rail nets in these areas are poor or non-existent. Intratheather airlift often provides the only means to move combat units and equipment away from congested ports and airfields to engage the enemy in forward locations. Since intratheater movement is frequently conducted under conditions where combat is imminent, troops and equipment must flow together. Unit integrity and speed are essential. Combat power must not be fragmented, to do so would risk defeat. Since much of the combat equipment is outsize, intratheater airlift must also have outsize capability. The ability to operate into and out of austere, forward airfields is also necessary. In addition, intratheater aircraft must have the capability to airdrop troops, supplies, and equipment, to take full advantage of tactical opportunities or to perform emergency support and resupply missions.


AIRLIFT OPERATIONS
C-5, C-141, KC-10, CRAF
C-17
C-130
C-17
C-17


AIRLIFT AIRCRAFT
CARGO CAPABILITIES
INTERTHEATER
INTRATHEATER

	C-141	C-5	C-17	C-130
[illegible]	●	●	●	●
OUTSIZE CARGO		●	●	
OUTSIZE AIRDROP			●	
LAPES			●	●
COMBAT OFFLOAD			●	●
NO. OF PALLETS	13	36	18	6

FIGURE 2 FIGURE 3

As shown in Figure 2 the Air Force C-17 program makes significant improvements in the Army's flexibility to meet its inter and intratheater airlift requirements by increasing the types of missions that can be accomplished by one type of aircraft.

As shown in Figure 3 the Army expects the C-17 to dramatically improve our intertheater, strategic deployment capability as well as the intratheater movement of forces and sustainment into the small, austere landing or drop areas as far forward as our combat brigade rear areas.

Now let me turn to our strategic sealift posture. The surge shipping requirement for the U.S. Merchant Marine Fleet, effective U.S. controlled fleet, and the government controlled fleet is about 4.6 million deadweight tons as shown in Figure 1. Against that requirement, Navy's programmed capability by 1990, including the eight converted SL-7, Fast Sealift Support ships, will be 4.2 million deadweight tons.

The shortfall is compounded by the continued decline of the militarily useful ships in the U.S. Merchant Marine Fleet caused by the trend towards large container ships and away from traditional breakbulk shipping. This situation calls for an innovative approach toward the scope and direction of strategic sealift programs. The Navy, with Army support, is meeting the challenge. For example, the Army fully supports the recently completed Ready Reserve Force (RRF) Resizing Study which recommends expanding the RRF from its current 61 dry cargo ships to 100 dry cargo ships to counter the decline of the U. S. Flag Fleet. We also applaud the recent addition to the RRF of five roll-on/roll-off ships and urge you to fully support the $203.4 million in the Navy's FY 86 budget to procure additional ships, especially RORO ships, for the RRF.

We are also in accord with the other features of the Navy's sealift enhancement program. Of particular interest is Navy's program to take non-selfsustaining container ships and make them unit equipment capable by substituting sets of flatracks and seasheds for standard 40 ft containers. The racks and sheds fit into the container cells of these ships permitting the loading of tanks and other heavy equipment in much the same way as they are loaded on breakbulk ships. The container ship modification program permits use of ship capacity that would otherwise be of limited use for movement of early deploying forces.

The Navy's Auxiliary Crane Ship (TACS) program complements the container ship modification program by providing the capability to offload ships in an austere port or in the stream. The 11 TACs in the program are capable of making 300 lifts per day per ship. TACS provides a much enhanced platform over what Army currently has to offload containers and unit equipment from container ships.

An integral part of the strategic mobility equation is the capability to receive and discharge shipping once it arrives in an objective area. Under the auspices of an Army/Navy Memorandum of Agreement, programs to balance Navy strategic sealift and Army offload and discharge capability are well underway.

The Army's offload and discharge program is sized against the minimum requirements of the most demanding over the shore scenario which we could expect to face in Southwest Asia (SWA). However, because of the program's flexibility, these systems can be employed elsewhere as the need arises. Included in the Army Logistics Over The Shore (LOTS) program are two companies of LACV-30 air cushioned vehicles (one company is operational today and a second company will be operational in FY 1986); modernization and upgrade of the Army's aging watercraft fleet; and joint procurement with the Navy of causeway systems.

The family of causeway systems can be used in a variety of ways in a Logistics Over The Shore operation. The most critical requirement for these causeways is to act as a bridge to Army displacement watercraft and barges which cannot reach shore because of shallow beach gradients prevalent in SWA and typical in other regions of the world.

The Army's procurement program for watercraft and causeway systems will provide sufficient capability to meet U.S. CENTCOM's minimum lots requirement by 1990. Our capability today is about 40 percent of the requirement.

Army must also discharge ships and watercraft as fast as they arrive or else ship queues are likely to develop delaying force closure and jeopardizing mission accomplishment. The DOD Sealift Study determined that Navy/Marine Corps terminal unit capability was adequate, but that Army possessed less than half of the capability needed to meet the average daily discharge requirements of a major deployment like that envisioned for SWA. Consequently, a major effort is underway to reshape Army logistics units to enhance overall productivity. For example, by adding state of the art cranes, forklifts and container handlers to our terminal units, we will achieve a 50 percent increase in productivity by 1989 without an increase in force structure.

In addition to the discharge of dry cargo, the Army is also responsible for supporting forces in combat with critical liquid cargo such as petroleum and water. We fully support Navy's procurement of commerical offshore POL discharge systems like the one depicted at Figure 4. The system is capable of delivering 1.2 million gallons per day from an ocean going tanker moored up to four miles offshore. It can be operational within 48 hours of arrival in theater. Shoreside, the Army's complementary POL program includes 1.9 million barrels of storage and about 900 miles of pipeline to move the POL product inland. Recent developments in water purification technology will eliminate the need to store and bring water ashore from water tankers. Reverse osmosis water purification barges with their two 150,000 gal per day units, along with our 600 and 3000 gallon per hour units, provide a solution to our long standing water purification needs.

COMMERCIAL OFFSHORE POL DISCHARGE SYSTEM

SYSTEM OPERATIONAL PARAMETERS

- 4 STATUTE MILES OFFSHORE
- 1.2 MILLION GALLONS PER DAY
- OPERATIONAL WITHIN 48 HOURS
- COMMERCIAL, ALL WEATHER SYSTEM
- 35-200 FT OF WATER/70,000 TON DWT TANKER

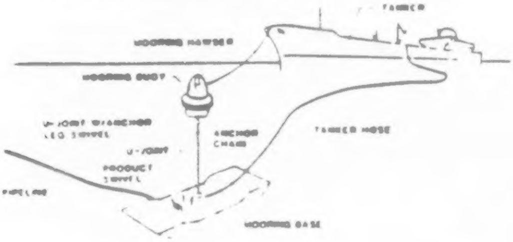

TANKER
MOORING HAWSER
MOORING BUOY
U-JOINT W/ANCHOR LEG SWIVEL
ANCHOR CHAIN
TANKER HOSE
U-JOINT
PRODUCT SWIVEL
PIPELINE
MOORING BASE

FIGURE 4

At the same time that our sister services have been enhancing their strategic lift programs, the Army has fully recognized the need to reduce overall mobility requirements in order to lessen the burden on our increasing but still scarce strategic lift resources. I would like to mention some specific Army programs that have had a significant, positive effect in this area, namely the light division initiative, the use of intermediate staging bases, our prepositioning programs and the incorporation of transportability features into our equipment.

Most important in this category is the light division initiative. As illustrated in Figure 5, light divisions are designed to be air deployable in fewer than one-third the number of C141-equivalent sorties required to move a current infantry division. Their rapid deployability may well preclude the necessity to insert a larger force later. Another feature of the light division is that it is robust and "tailorable" enough to remain survivable and be useful when employed along the entire spectrum of warfighting scenarios, from low to mid and high intensity environments.

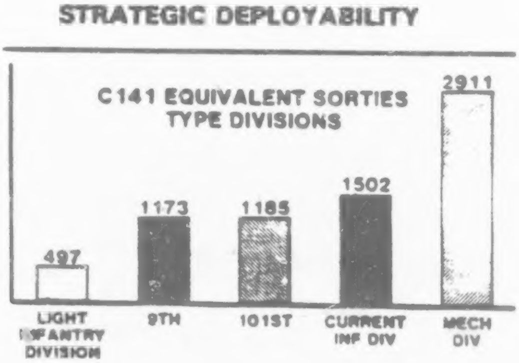


FIGURE 5

A complementary Army program to further reduce response time is the use of intermediate staging bases. By beginning deployments to an intermediate staging base immediately after the decision to deploy has been made, the response time to enter into an objective area is shortened. The movement into the objective area may then be supported by intratheater lift, thereby freeing strategic lift for moving forces from CONUS directly to the area of operations.

Foreign country access rights have been a major constraint to date in establishing fixed intermediate staging bases. We are currently working with the Department of State through the Office of the Joint Chiefs of Staff to obtain access and basing rights for our intermediate staging bases while at the same time exploring temporary alternatives such as prepositioning of staging base equipment (tents, rations, etc) either afloat or ashore to support very austere staging bases of opportunity.

To further reduce the strategic mobility burden, Army continues to request funds for its prepositioning programs. In Europe, prepositioning six POMCUS sets with their associated combat support and combat service support is the only way we will ever have the capability to close 10 divisions in 10 days. We are today about 40 percent of the way toward prepositioning the total requirement in Europe.

In SWA, the DOD sealift study identified an ashore or afloat prepositioning requirement for a substantial package of combat support and combat service support equipment over and above what is at Diego Garcia in prepositioning ships. Prepositioning is necessary either because there is insufficient airlift programmed to meet the time-phased requirement or because some items of equipment required very early are just too large for a C-5 aircraft or too difficult to deploy by sealift in time to meet force closure requirements. The first increment of this program, the Heavy Lift Prepositioning Ship, is scheduled to be on station by the end of this year. It will carry 8000 short tons (STONs) of terminal operations equipment necessary to offload in the theater the prepositioning ships from Diego Garcia and other early arriving sealift such as the converted SL-7's (TAKR'S).

We are also aware of the need to ensure that transportability is addressed as a critical factor in new equipment design. Modernized equipment, no matter how capable, is useless unless it can be efficiently transported to the theater and enhance battlefield mobility. We have taken steps to insure transportability is taken into consideration in our equipment development and procurement process.

A related equipment transportability item is our program to reduce movement requirements by lightening packaging and crating material and techniques. For example, one third of the weight of our ammunition is in heavy packaging material, the same general way we have been doing it since the Civil War. Now we are packaging it so as to reduce weight and/or cube and decrease handling time as illustrated in Figure 6.

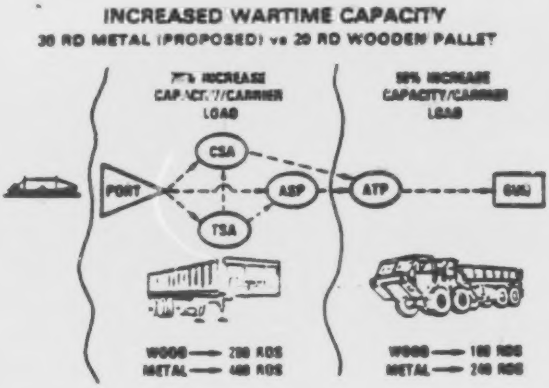

INCREASED WARTIME CAPACITY
30 RD METAL (PROPOSED) vs 20 RD WOODEN PALLET
INCREASE CAPACITY/CARRIER LOAD
INCREASE CAPACITY/CARRIER LOAD
PORT
CSA
ASP
TSA
ATP
GUN
WOOD —— 200 RDS
METAL —— 400 RDS
WOOD —— 100 RDS
METAL —— 200 RDS

FIGURE 6

The combination of the Air Force and Navy's strategic airlift and sealift programs, Army's prepositioning and Logistics Over The Shore programs, and our efforts to improve combat force structuring and combat service support capability reduces strategic lift shortfalls significantly over the FYDP.

Our efforts have been directed toward a balanced growth in these programs to avoid the kinds of ship queues and cargo backlogs we experienced in Vietnam. We appreciate your support over the last few years in recognizing and funding programs which enhance our force projection capability. We have made a good beginning but we need your continued support if the Army is to retain its credibility as a viable deterrent and war fighting force.

STRATEGIC SEALIFT CAPABILITY

Senator **Cohen**. I just have a couple of questions, General. I think the Navy has been making fairly substantial progress in enhancing and improving the strategic airlift capability,. I was wondering whether the Army has a corresponding ability to offload those ships in keeping pace with the Navy's ability to deliver them. Do you have a problem there?

General **Russo**. Yes, sir.

Senator **Cohen**. What do you need in the way of help?

General **Russo**. Sir, to do that job we break it down into three pieces. The first piece is prepositioning. We are improving our sealift prepositioning in the Southwest Asia area. We have started the first increment of that program which begins this year. It will be in place by early spring of next year. It is called a heavy equipment prepositioning ship. It will have 8,000 tons of our equipment out there.

That type of equipment is the kind that is needed to offload the Navy's ships while working in the stream. That is, away from a pierside facility. It includes barges; it includes cranes; it includes forklifts—those types of things that are needed to bring the freight from the ships to the shore.

The second piece has to do with our Watercraft Program. We have an aggressive Watercraft Program ongoing. It includes the LACV-30, which is an air cushion vehicle. We have one of those companies already in the force. The other company is beginning to build, and will be completed in 1986.

We have some landing craft utility ships in our program. They will begin coming on board to assist us in meeting the Navy's schedule of their ship program.

Third, we have done quite a bit of work with regard to our terminal service companies, those units that physically handle the cargo on board the ships and the shore. We have increased the force structure to handle that problem. We have also increased our capability of each one of those units by using modernized technology to enhance their productivity.

So by the end of our period, we are in balance with the Navy programs and meeting our requirements to bring cargo ashore.

Senator **Cohen**. You know, there has been a kind of Parkinson's law at work in terms of the Army's capacity to expand its size and weight requirements for its equipment in direct proportion to the Air Force and Navy's inability to carry it.

So I was pleased to hear you say that the Army is striving to lighten up. It gets fairly complicated, as we go through all of these studies of mobility and maneuver warfare, and we are making some progress on it. And we are finding out, well, can you have maneuver warfare with United States units, but without European units? And the answer is, no, you cannot, all of us have to be moving toward more maneuverability.

Then of course Senator Nunn would say, well, wait a minute. Here we are lightening up the Army, and the Germans are doing the same. Who is going to have the heavy stuff? So it gets to be fairly difficult.

But would you elaborate a little on what the Army is doing to lighten its forces to reduce sealift and airlift requirements?

General Russo. Sir, I would say that first the lighten-up efforts that we have ongoing, at least that I am directly familiar with, are those that treat the sustainment of the force.

First, in terms of force structure, our light infantry division does not have any outsized cargo. So it makes that an easily deployable capability to meet those less risky but more probable type of scenarios. But we are doing a lot of work primarily in the logistics research and development community to lighten up and package our sustaining supplies differently than we do today.

I have an example in my written statement which shows that we are able to increase the number of rounds that we package simply by different packaging techniques, that in one vehicle we can carry almost 50 percent more rounds than we did before. So those kinds of techniques are what we are really looking to at the moment. We are trying to lighten up the force by better packaging technology, by better materials technology.

We see that in our organizational clothing and individual equipment, where we are lightening up the items that a soldier has to carry, if you will, into combat. We are making that lighter and more durable not only in the warm climates but also in the very cold climates. That is another aspect of lightening up the force.

So I think that our focus that I can report to you now is on the sustaining side of the house, but we are looking also at composite materials and what that might be able to do to lighten up our force overall.

At this point in time, sir, I do not see the near-term effects of this latter effort I can report to you.

Senator Cohen. Thank you very much, General.

Admiral Metcalf, would you like to proceed?

STATEMENT OF VICE ADM. JOSEPH METCALF III, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

Admiral Metcalf. Yes, sir; good morning, Mr. Chairman, and Members of the subcommittee. I am Vice Admiral Metcalf, Deputy Chief of Naval Operations for Surface Warfare, and the sponsor of the Shipbuilding and Conversion, Navy [SCN] appropriation. It is an honor to be back here again today.

At this time, I would like to have my prepared statement entered into the record.

Senator Cohen. It will be included.

Admiral Metcalf. This is the area of force projection where the close cooperation between the Navy and the Marine Corps partnership is most apparent. We have gone through a number of studies, including 1983, when we jointly agreed to the requirements for ships to lift the Marine force.

This increased lift includes the construction of the LHD-1 Class amphibious assault ships, the LSD-41 landing ship dock, the cargo-carrying variant of the LSD-41, and a service life extension of the LPD-4 class.

In addition, we are continuing to buy landing craft air cushion, the LCAC, which is designed to operate from the LSD-41 and the

LHD as well as other well deck ships. The goal of this building program is to achieve a capability by 1994 to simultaneously lift the assault echelons of a marine amphibious force and a marine amphibious brigade.

We believe this is a balanced and cost effective program. As we mentioned the other day, this whole SCN program represents a 6 percent negative real growth compared to last year. Actually, this whole program is a negative growth rather than a positive growth. In fact, the whole SCN program in fiscal year 1986 represents about 11 percent of Navy TOA [total obligation authority] versus the 13 to 14 percent it has averaged in recent years.

But having said that, we believe that in particular this part we are addressing today, which is our assault force and the support of the Marine Corps, is balanced to meet our needs and to satisfy the operations of the Marine Corps.

Senator COHEN. It is a significant increase, however, in sealift. You are up to about a 556-percent increase over last year in sealift.

Admiral METCALF. I do not know what the percentage is, but that sounds good to me.

Senator COHEN. Well, in spite of the overall reduction of the SCN account, you are still up substantially in this account.

Admiral METCALF. Yes, sir.

MANEUVER WARFARE

Now you mentioned maneuver warfare. Of course we in the Navy think we are the inventers of it, but the landing craft air cushion [LCAC], epitomizes the idea of maneuver warfare. Along with the LHD-1 and the LSD-41, it is going to revolutionize that. It will really give any opponent who is facing the threat of a marine amphibious landing a real problem. It will save lives, and in the long-term, in my judgment from the warfighting perspective, is really the way to go.

Senator COHEN. Do not the Soviets already have LCAC's deployed?

Admiral METCALF. Yes, they do. Rather interesting looking vehicles with their fans, and everything else. Of course, to be meaningful you have to ask what is deployed by the Soviets and they have Naval infantry stationed in all fleet areas.

Senator COHEN. When you say it is an awesome force to consider, I think you are right, and I think they are rapidly developing such a capability.

Admiral METCALF. They are rapidly developing in not only this area, but in all kinds of areas. They have a slightly different concept. They use their merchant marine of course, their RO/RO ships and others. Their whole merchant service is designed to support their amphibious operations.

Senator COHEN. I was going to ask you about that, because we do not have much of a merchant marine, do we?

Admiral METCALF. Well, my friends in the merchant marine might argue with that, but we certainly do not have the numbers that are required in a strategic sense.

Senator Cohen. Well, most of the commercial ships that are being developed now are not being developed in a way to be readily adaptable to——

Admiral Metcalf. That is right. They are container ships. And of course that is why we are going into this while the time is right to get ships which are more appropriate to carrying material into undeveloped ports and undeveloped beaches.

LHD CLASS

Of particular interest today is the multiyear production of the three LHD-1 class, which we mentioned the other day. Under this concept, we are requesting full funding for the LHD-2 as well as advanced procurement for the 3 and 4. What we are looking at here is a procurement scheme by which we project savings of over $800 million.

More importantly, from the war-fighting perspective, we think we are going to deliver these ships 33 months earlier than if we had executed a normal annual procurement. Now the LHD——

Senator Cohen. Let me interrupt you right there. Let me just talk about that, because I do not want to question your figures about the $800 million savings. I believe that is probably doable and achievable.

The question really becomes one of what happens if—you are requesting now I think it is $1.5 billion in fiscal year 1986 to begin the funding of three LHD-1s—what happens if you have the cutback in the funding we are talking about, and you have a commitment to a multi-year procurement for fiscal year 1988 and fiscal year 1989, and you have to decide whether to cut some of those ships out or build them? What do you do in terms of making a tradeoff at that point between 688s, DDG-51s, and CG-47s? If you have a fiscal 1988 plan that calls for four of the 688s, three CG-47s, and five DDG-51 destroyers, and you also have yourself committed to a multi-year procurement of LHD-1s, then what are you going to do? What is going to give?

Admiral Metcalf. Well, it is very difficult to say at this point in time to say what is going to give in 1988 and 1989. There is one point on this. This way of doing business represents a savings which buys a DDG-51. In real, concrete terms, that is what we are talking about. We are putting together a responsible program.

Senator Cohen. But you are basing that on 8 percent real growth. You are saying, if we have 8 percent growth, we buy these and we save $800 million, and we will have enough to put those 51s into the force.

What I am saying is, what if you get 3 percent for the foreseeable future, and maybe less, and you commit yourself to a multiyear procurement now? What is that going to do to the account when it really comes to the rubber meeting the road?

Admiral Metcalf. Well, when the rubber meets the road, we will have to evaluate——

Senator Cohen. That is an improper metaphor for the Navy, I understand, but——

Admiral Metcalf. No, that is all right. I'm with the Marine Corps today. It gets down to where you will have to examine all parts of the program. There is a prioritization of all parts, and it will of course be more difficult to deal with this, but when you are looking at the total context of the 600-ship force, and recognizing that that force is designed to support a maritime strategy which I believe the commitee has been briefed on, you then have to say to yourself: Where are we going to take risks?

To say that we are going to take it in an LHD–1 or a DDG–51 or a CG–47, I think we have got to look at what we are trying to do within that maritime strategy.

Senator **Cohen**. That is all I am really asking you to do.

Admiral **Metcalf**. That is exactly what we will do.

Senator **Cohen**. Because I do not see the 8-percent numbers there, and I think it is very unrealistic to base a plan on that. I am concerned—and I accept your premise. We could have tremendous savings on this program. I am just concerned that if you commit us to a multiyear procurement and front-load three LHD–1s, and then the crunch comes, something is going to have to drop out. Something is going to have to drop out.

Admiral **Metcalf**. We believe our outyear program is the best way to go both from the perspective of maintaining the 600-ship force, as well as the risk we are taking relative to the financial burden.

Senator **Cohen**. As recently as September 1984, there was no request for fiscal 1986 funding for an LHD–1. It was planned for fiscal 1987. You have stepped it up to 1986. I am just wondering what has changed between September 1984 and now.

Admiral **Metcalf**. Normally we build a lead ship and then gap a year, then we build another ship, and that is what we are doing here. That is what makes sense, if you are going to get on with the business of building ships in a reasonable way, and get them into the force.

I am not entirely familiar with what went on, but a good part of it is the development of a procurement program relative to the shipyards, and the competition, and the opportunity to build the ships in an economical way. All of these things play, and this just seems to be the best way to take a look at it relative to the dollars that are available that were allocated by the administration to the Department of Defense, and hence down to the Navy.

Of course the Navy does its programming within the context of our maritime strategy, and that is how this evolved.

Senator **Cohen**. All right.

Admiral **Metcalf**. Now the two LSD–41s requested are the last of that class, the seventh and eighth ships. The first one, the LSD–41, *Whidbey Island*, has been delivered, and it is doing a terrific job. We are very pleased with it.

Once again, we think we have a good plan and that the amphibious portion of the entire shipbuilding plan fits into the total mosaic of what we are trying to do in the Navy relative to our maritime strategy and the 600-ship force.

Now Bob Kesteloot will talk about the strategic sealift in this thing.

Right now, I am ready for questions.

[The prepared statement of Vice Adm. Joseph Metcalf III follows:]

PREPARED STATEMENT OF VICE ADM. JOSEPH METCALF III, U.S. NAVY, DEPUTY CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

Mr. Chairman and members of the committee, I am Vice Admiral Joe Metcalf, USN, the Deputy Chief of Naval Operations for Surface Warfare and the Amphibious Force Sponsor. I am pleased to have the opportunity today to present to you the Amphibious Force portion of this hearing.

Amphibious Warfare is a unique capability developed and perfected jointly with the U.S. Marine Corps during World War II. It is a uniquely fashioned force designed for forcible entry—there is nothing defensive about Amphibious Warfare. Amphibious operations in combat epitomize the strong heritage of the Marine Corps, and the Navy is proud to be a part of this concept. I intend to emphasize our continued support of this offensive mission as an essential part of our Maritime Strategy. General Godfrey has already addressed you on our overall capability and I will attempt to provide you with some details which will give you a better view of specific Navy programs which support our Amphibious Warfare mission.

In developing plans to expand the Navy and seeking to revitalize our maritime strength we quickly concluded that we must increase our amphibious lift capability, improve our ship to shore capability through procurement of LCAC, V-22 OSPREY (formerly JVX) and CH- 53E and correct known deficiencies in systems and equipment which support amphibious operations. Our initiatives are far ranging and designed to achieve a balanced increase in tactical air, naval surface fire support, amphibious forces, CH-53E helicopters, assault craft, sealift, prepositioning, cargo handling and off-loading equipment, and general increases in ordnance and supplies.

You are aware of our Prepositioned Force ships which have been in or near Diego Garcia since 1980. There are now seventeen ships in this force (including one ship in the Mediterranean) of which five contain equipment, supplies, and ordnance to support a Marine Amphibious Brigade for thirty days of combat. These five ships will be replaced by the second set of Maritime Prepositioning Ships (MPS) when it becomes operational by the end of fiscal year 1985. By the end of fiscal year 1986, our Afloat Prepositioning Forces will consist of three MPS squadrons—one each in the Atlantic, Pacific, and Indian Oceans (13 ships with USMC equipment) and thirteen ships loaded with Army/Air Force/Navy supplies and equipment sited in Diego Garcia and the Mediterranean. Capt. Bob Kesteloot is here today to provide you with information on the latest programs in the vital areas of Strategic Sealift and Maritime Prepositioned Forces.

Amphibious Lift plays a key role in the objective of achieving a "600 ship Navy." Although a host of factors are taken into account in determining total force levels, the primary factors in determining the Amphibious Force level and ship design is the Marine Corps lift requirement and the ship to shore assets required to execute the landings. In the stated goal for 1994 is the capability to lift the assault echelons of both a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). The Assault Echelon (AE) is composed of the most critical assault elements needed to seize a beachhead and rapidly build up combat power ashore. These elements must be transported, landed, and supported from specialized amphibious ships in order to successfully conduct an amphibious assault. The remainder of the landing force makes up the Assault Follow-on Echelon (AFOE), comprising the troops, equipment, and supplies needed to support and sustain the initial assault. These follow-on landing force elements are embarked in Military Sealift Command (MSC) controlled fleet ships, which may be government-owned and chartered or requisitioned from the private sector.

Generally speaking, the Assault Echelon contains about 75 percent of the personnel, a little more than half the vehicles, 20 percent of the dry cargo and supplies, and 10 percent of the POL. This leaves 25 percent of the personnel, a little less than half the vehicles, 80 percent of the dry cargo and supplies, and 90 percent of the POL to be lifted in the AFOE ships.

The Marine Corps has defined and stabilized the equipment and troops that go into making up the assault echelons of a MAF and MAB through the 1990's. This lift requirement equates to 50,000 personnel which includes the associated Naval Support Elements, 633 CH-46 equivalent helicopter spots, 2.5 million cubic feet of combat cargo and 1.1 million square feet of combat and support vehicles (Table 1).

1994 ASSAULT ECHELON LIFT REQUIREMENT

	TROOPS	VEHICLE (SQ FT X1000)	CARGO (CU FT X1000)	HELO (CH-46 EQUIV)	LCAC/LCU/LCM-8
MAF (AE) + NSE	37800	760	1790	467	65/9/38
MAB (AE) + NSE	12200	280	700	166	25/4/16
TOTAL	50000	1040	2490	633	90/13/54

An extension of the lift requirement plus the ship to shore assets to get the Marines ashore equates to various types and numbers of ships. Two other factors must be taken into account in the design of our ships. The first is the amount of well deck space required to lift the boating assets that are necessary to execute the surface portion of the ship to shore movement. Well deck space to lift 90 LCACs, 13 LCUs, and 54 LCM 8s is needed to support the Assault Echelon of a MAF and MAB. The second is the number of flight decks required to support the air portion of the ship to shore movement. A total of 96 CH-53E's, 225 V-22 OSPREYS, 96 AH-1's, 30 UH-1's, 13 MH-53E's and 6 CH-46's are required to support the Assault Echelons of a MAF and MAB. This mix of helicopters equates to 633 CH-46 equivalents.

The amphibious force will consist of 62 ships at the end of fiscal year 1986. This excludes the two AGF's which are converted LPD's and designated to support Fleet Commander flagship requirements. These 62 ships provide us a capability to lift approximately 41,258 troops, 427 CH-46 equivalent helicopters, 809 thousand square feet for vehicles, 1.7 million cubic feet for cargo and the well deck space to lift 39 LCACs, 13 LCUs and 71 LCM-8s (Table 2). Lift shortfalls are primarily helicopter spots and cargo cube capacity.

1986 AMPHIBIOUS SHIP LIFT CAPACITY

TROOPS	VEHICLE (SQ FT × 1000)	CARGO (CU FT × 1000)	HELOS (CH-46 EQUIV)	LCAC/LCU/ LCM-8
41258	809	1727	427	39/13/71

The five year shipbuilding program is designed to alleviate these shortfalls and increase our amphibious force to an approximate total of 76 ships by 1994. (See Table 3-Amphibious Force 1984-1998). A comparison of Table 1 and Table 4 shows that the lift capacity of these 76 ships would meet Marine Corps lift requirements by 1994.

1994 AMPHIBIOUS SHIP LIFT CAPACITY

TROOPS	VEHICLE (SQ FT X 1000)	CARGO (CU FT X1000)	HELO (CH-46 EQUIV)	LCAC/LCU/LCM-8
55184	1071	2612	637	90/13/54

The trend to building more capable ships is reflected in our selection of the LHD 1 Class ship which is a modification of our largest existing class, the LHA. Design changes from the LHA will emphasize increased capability to carry these LCACs and facilities for Aviation Intermediate Maintenance (AIMD) to support a detachment of four to six AV-8B vertical/short take-off and landing aircraft in the primary amphibious assault mission. In addition to her primary mission of amphibious assault, the LHD can be converted in a short time at minimum cost to a secondary mission of force projection and sea control. By the use of support vans in the spaces normally holding Marine Corps vehicles, the support facilities can be expanded to handle a minimum of twenty AV-8B's and four to six SH-60B helicopters planned for the secondary mission. The elevators used for Marine cargo offload would be available for aircraft rearming since the ship would have no amphibious mission when functioning under the alternate mission.

AMPHIBIOUS ASSAULT SHIP - LHD 1

Mission:

To embark, deploy and land elements of a major Marine landing force in an assault by helicopters, VSTOL aircraft, landing craft and amphibious vehicles. The LHD class may be converted to operate AV-8s in the attack role.

CHARACTERISTICS

LENGTH:	844 FT
NAV DRAFT:	26 FT 8 IN
PROPULSION:	STEAM
TROOP CAPACITY:	1,873
HELICOPTER CAPACITY	42 CH-46 equivalents

	OFFICER	ENLISTED
CREW: INCLUDES CATF AND STAFF	98	982
BEAM:	106 FT	
FULL LOAD DISPLACEMENT:	40,600 Tons	
SPEED:	20+KTS	
LCAC:	3	

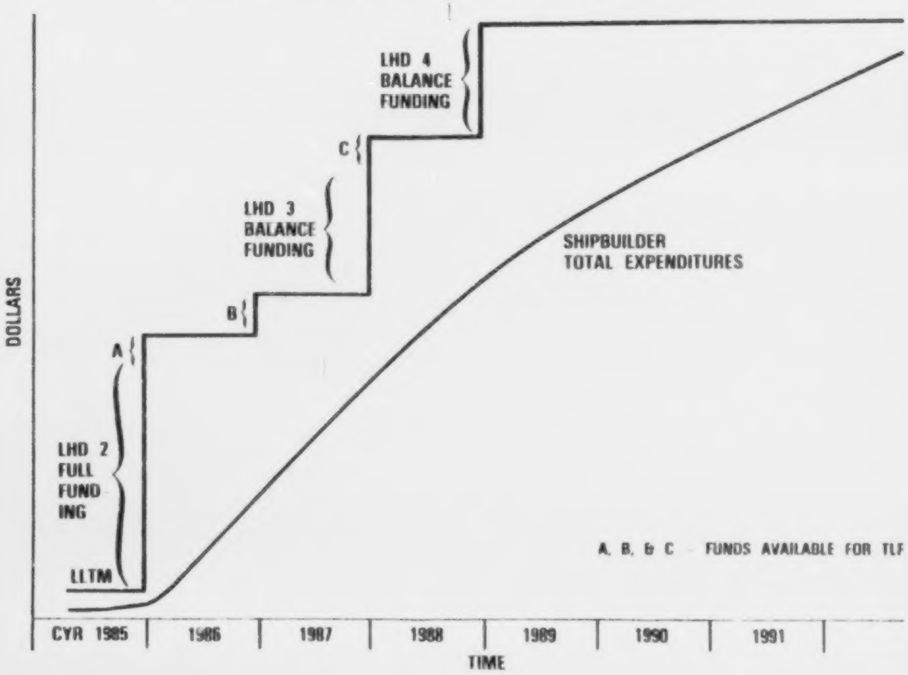
FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	1 SHIP	$1507.2 MILLION *INCLUDES MULTI-YEAR FUNDS FOR LHD 3, 4	COMPETITIVE

In fiscal year 1984, the Congress appropriated full funding for the lead ship of the LHD class and in fiscal year 1985 $39.2 million was provided for Long Lead Time Material for the LHD 2. This year we are requesting the Congress to authorize an approach to procurement of the next three LHDs that will result in both lower cost to the American taxpayer and an accelerated delivery of these vitally needed ships to the Amphibious Forces.

A competitive multiyear procurement is planned for the acquisition of LHD 2, 3, and 4 using a fixed price incentive contract. The contract will cover four successive fiscal years beginning in fiscal year 1986. This approach will achieve the same cost and schedule savings as a fully funded fiscal year 1986 three-ship procurement. It is estimated that over $800 million will be saved and ship deliveries advanced by up to 33 ship months.

The LHD 1 multiyear procurement will follow the mulityear procurement funding policy established in concert with the congressional procedure of funding procurement to the limit of the government termination liability and fully funding the remainder of the ship. In fiscal year 1986 we would have the full funding of LHD 2. In addition, there are advanced procurement (AP) funds for LHD 3 and 4 to allow the shipbuilder to begin the planning and procurement that would result in the best possible delivery at the lowest possible cost. As shown in table 5 there would be a second allotment of advance procurement funds in fiscal year 1987 to continue efforts on LHD 3 and 4 with full funding of LHD 3 in fiscal year 1988. There would be continuation funds for LHD 4 in fiscal year 1988 with balance of funds in fiscal year 1989.

ADVANCE FUNDING APPLIED TO LHD MULTIYEAR PROCUREMENT



The Government will specify in the Request for Proposal (RFP) the obligation authority which will be available in fiscal year 1986, fiscal year 1987, and fiscal year 1988 to cover contractor cash flow requirements related to the advance procurement and a reserve in the event the project is terminated. This reserve will be clearly established with the shipbuilder and it will put a ceiling on the Government's liability in the event of program termination, hence the label "Termination Liability Funding."

During the fiscal year 1986 through fiscal year 1989 period, the Government will be procuring Government Furnished Equipment (GFE). Since the approach is to obtain the three ship sets of GFE at lowest cost, most equipment buys to support the LHD 2 schedule will be supplemented with funds for LHD 3 and LHD 4 when this would result in a lower overall cost. In those circumstances where a Government Equipment Manager is instituting a major procurement that will result in significant savings, LHD 2, 3, and 4 equipment will be added to that procurement even if it would result in earlier GFE deliveries than the ship production schedules require. Similarly, the shipbuilder will be procuring equipment for three ships, in many cases, in order to obtain the lowest cost at the required delivery.

A multiyear procurement will lead to improvement of the industrial base by significantly enhancing competition among shipbuilders. A competitive, three-ship fiscal year 1986 procurement will reduce barriers to entry for competing shipyards, as compared to single-ship buys in fiscal year 1986, fiscal year 1987, and fiscal year 1989.

The incumbent shipyard has a competitive advantage due to experience gained as detail design agent and builder of the lead ship. A multiyear procurement will allow competing shipyards to spread such costs over three ships rather than only one. Thus although the incumbent benefits from experience gained on the lead ship a multiyear procurement would lessen the advantage and assure an excellent competition.

This acquisition approach is intended to facilitate the delivery of three follow-on LHDs to meet the requirements for amphibious lift in the 1990 timeframe. It provides for an efficient production profile that will generate substantial cost savings and earlier ship deliveries over the traditional approach of sequential single-ship procurements.

In fiscal year 1984, Congress approved the President's request for a five-ship, three-year multi-year procurement with certain conditions for the LSD 41 Class. In lieu of a multiyear contract, the Department of the Navy offered to industry a proposal for one ship in fiscal year 1984 with priced options for additional ships in fiscal year 1985 and fiscal year 1986. The competition for this contract was intense and resulted in substantial procurement savings.

LANDING SHIP DOCK - LSD-41

Mission:

To transport and launch loaded amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations.

CHARACTERISTICS

LENGTH: 609 FT
NAV DRAFT: 19.5 FT
PROPULSION: DIESEL
SPEED: 20+ KTS

	OFFICER	ENLISTED
CREW	18	337

BEAM: 84 FT
TROOP LIFT: 504 *
LCAC: 4
FULL LOAD DISPLACEMENT: 15,745 Tons

* 338 Troops plus 102 surge capacity; 64 assault craft unit accommodations.

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	2 SHIPS	$414.4 MILLION	AVONDALE (OPTION ON FY 84 CONTRACT)

The two ships requested in fiscal year 1986 represent the seventh and eight ships of the LSD 41 Class. The lead ship, constructed by Lockheed Shipbuilding in Seattle, Washington, was delivered on 8 January 1985. Lockheed is also building the second and third ships of the class. Avondale Shipyards, Inc. was awarded a fixed-price incentive contract in fiscal year 1984 for the fourth ship with options for two ships in fiscal year 1985 and two ships in fiscal year 1986. The option for the fifth and sixth ships in this class was executed in November 1984 and the option for the seventh and eighth ships is to be executed in November 1985.

Another essential element of the amphibious life equation is the retention of the LPD 4 Class ships through the year 2005 by a Service Life Extension Program (SLEP). Without Service Life Extension Program for the LPD 4 Class, we will be unable to achieve our lift goals through the 1990s. The LPD 4 Class is approaching the mid-point of the traditional thirty year service life of Navy ships. These ships are in good material condition and are excellent candidates for a fifteen year service life extension.

This is a prudent and highly effective method to ensure adequate lift for the future. The first LPD 4 SLEP is planned for the private sector in fiscal year 1988. The SLEP will provide improved survivability and engineering plant modernization as well as self-protection systems such as CIWS, SRBOC, and SLQ-32 systems. Additionally, the LPD 4 Class will receive well deck modifications to operate one LCAC.

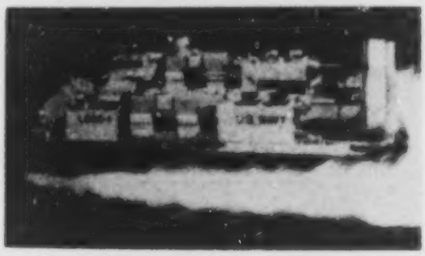
Increasing our lift capability is only part of the solution needed to improve our forcible entry posture. The helicopter was introduced into the Amphibious Force in 1958, giving it the capability to launch troops and air transportable equipment from a standoff distance. However, the surface assault and movement ashore of tanks and heavy equipment by slow, conventional landing craft continued to require the Amphibious Task Force to remain close to the shore.

Both the increased risk to our forces and modern technology have brought us to the use of air cushion craft to complement the helicopter. The Landing Craft Air Cushion Vehicle (LCAC) is the key to our concept of operations in the 1990s and beyond. That concept is based on an undisclosed over-the-horizon assault from 25 to 50 miles offshore using both LCAC and helicopters as compared to one to two miles in the past.

LANDING CRAFT AIR CUSHION - LCAC

Mission:

The LCAC program has been established to transport weapon systems, equipment, cargo, and personnel of the assault elements of the Marine Air/Ground Task Force from ship to shore and across the beach.



CHARACTERISTICS

LENGTH:	87 FT 11 IN
BEAM:	47 FT
PROPULSION	GAS TURBINE
CARGO DECK AREA:	1,809 SQ FT

	ENLISTED	
CREW:	5	OPERATOR ENGINEER NAVIGATOR LOAD MASTER DECK HAND ENGINEER
DESIGN PAYLOAD:	60 Tons	
OVERLOAD PAYLOAD:	75 Tons	
SPEED:	40 KTS with payload	
RANGE:	200 NM with payload	

FUNDING REQUEST	NUMBER	TOA * REQUESTED	BUILDER
FY 1986 PROGRAM:	12 CRAFT	$307.0 MILLION *INCLUDES ADVANCE PROCUREMENT	BELL AEROSPACE/TEXTRON PLUS SECOND SOURCE

The importance of the LCAC in improving our tactical choices against hostile shores can not be over-emphasized. Future amphibious assaults will capitalize on the speed of the amphibious Task Force and the 40 knot plus speed of the LCACs and helicopters to deny disclosure to the enemy and prevent positioning of his anti-assault forces. A modern Amphibious Task Force can be nearly 500 miles away from the objective at H-Hour minus 24 and make a pre-dawn attack launched beyond the enemy's horizon.

The LCAC provided a four-fold increase in beach areas accessible to our Amphibious Forces because it is not restricted by tides, beach gradients, and surf conditions. The mere presence of air cushion vehicles in the Amphibious Task Force greatly complicates the enemy's efforts to mass an adequate force to repel the assault by increasing the number of potential landing sites or the expanse of shoreline he must be prepared to defend. The air cushion capability also allows the LCAC to proceed inland to discharge its cargo on dry trafficable terrain, thus avoiding the significant buildup of troops, equipment, and material at the surf zone which is characteristic when using conventional landing craft. Additionally, the overall survivability of the Amphibious Task Force is enhanced during the initial assault through the ability to keep the ships over-the-horizon at longer ranges and to disperse them as necessary thereby lessening the enemy's ability to correctly guess where to employ mines and construct elaborate beach defenses. The LCAC also increases the survivability of the landing force by permitting a more rapid buildup of combat ashore and in places least expected.

Fiscal year 1986 will be the fifth year of LCAC production with twenty-one craft having been appropriated to date. The first craft was delivered to the Navy in December 1984 and will be included in the first six to be made operational on the west coast by the summer of 1986. These craft can be carried in varying numbers in LSDs, LHAs, LPDs, and LHDs, and we have tailored our force levels and ship configurations to accomodate the 90 LCAC needed to support a MAF and a MAB.

This year Navy is requesting $307.5 million for twelve LCACs which include $30.8 million in advance procurement for future production. Production requirements will be split between a lead yard and a second source. A total of 60 LCACs are contained in the five year plan submitted with the fiscal year 1986 budget.

The Amphibious Fleet Modernization Program (FMP) provides for incremental improvements to our amphibious ships. Totaling $117M in fiscal year 1986, it emphasizes ship survivability and amphibious mission enhancement. Firefighting improvements, both on the flight deck and main machinery spaces, are being accomplished on thirteen ships. In the area of self defense: nine Close-in-Weapons Systems (CIWS), four SLQ-32(V)3 systems and four Nixie anti-torpedo defense systems will be installed. All facets of aviation support are being addressed on the LHA's and LPH's including improved TACAN and radar control, optical landing systems for AV-8's and AIMD maintenance expansion. Welldeck modifications to support the introduction of the LCAC on two LDS-36 class will be completed.

The projected end strength of the Ready Reserve Force (RRF) has increased from 77 ships to 116 ships on recent MARAD forecasts of the continued decline of militarily useful U.S. Flag Merchant Fleet and analysis of cargo shortfalls from the DoD Sealift Study.

In fiscal year 1984 the Navy acquired 19 breakbulk ships from the original $31 million appropriation and five Roll-On/Roll-Off (RO/RO) ships from the supplemental appropriation of $52 million. Five breakbulk ships and a LASH barge carrier were acquired from the $31 million fiscal year 1985 appropriation.

The Navy is requesting $203.4 million in fiscal year 1986 for the purchase of additional ships for the RRF. The number of ships actually acquired will depend on the cost of ships offered for procurement by the government.

To improve our cargo handling and equipment offloading capability, we are continuing to procure four heavy lift gear sets ($764K) in fiscal year 1986 used in loading the new Side Loadable Warping Tugs (SLWT) on LSTs. The SLWTs replace the causeway pusher boats which occupied valuable well deck space. Additionally, $208K has been requested for two fuel lines for the Amphibious Assault Bulk Fuel System (AABFS) which are needed to move fuel from offshore to the beach.

In concluding my remarks, the following viewgraphs show the specific amphibious ships requested in the fiscal year 1986 budget.

Mr. Chairman, this concludes my presentation of the Amphibious Forces. I am pleased to have had the opportunity to appear before your committee and I stand ready for your questions.

Senator COHEN. You have already answered my questions. We will move on to Captain Kesteloot.

Admiral METCALF. No, I think General Godfrey—we are bouncing down that way, sir.

Senator COHEN. All right. Captain, you are going to talk about sealift?

Captain KESTELOOT. Yes, sir; I am.

Senator COHEN. And you, General, will talk about the rapid deployment force?

General GODFREY. My remarks, Mr. Chairman, will simply complement the admiral, but I would be happy to follow the sealift.

Senator COHEN. Let us go with you, then, General.

STATEMENT OF MAJ. GEN. EDWIN J. GODFREY, DIRECTOR OF OPERATIONS, HEADQUARTERS, U.S. MARINE CORPS

General GODFREY. Sir, I am Maj. Gen. Jack Godfrey, the Director of Operations at Headquarters Marine Corps. I appreciate the opportunity to appear today.

In the interests of brevity, and since many of my remarks are complementary to what Admiral Metcalf has said, I would ask that my prepared statement be put in the record and I will just offer a very few oral remarks.

Senator COHEN. It will be included.

General GODFREY. Some will be from a personal observation, and some that I imagine most any marine would say.

As a result of this committee's support and the rest of the Congress, the Commandant was able to earlier report favorably on the posture of the Corps not only today but in the future. A lot of this is due to an effort that has gone on since the 1982-1983 timeframe when the Navy and the Marine Corps got together and finally fixed our sights on where within the context of the 600-ship Navy and Amphib Force should go, taking into account the fact that there is not a bottomless pit of dollars to pay for the Amphib Force in the future, the strategic mobility requirements that were already being addressed by the nearterm prepositioning force, and the Maritime prepositioning ships program.

I just recently returned, 9 months ago, from about 5 years out in the Pacific with the Fleet, and I saw there much of what was coming into the force—the new equipment, the increase of training, the increase in quality of people, and increased sustainability. These are all things we are interested in.

But when I came back to Washington, I gained my first real appreciation for the program the admiral spoke of. The maritime prepositioning program is going to give us a tremendous capability, particularly—and I would urge support of the Air Force's C-17 Program, because that fits right with the Maritime Prepositioning Program, and will offer us flexibility, because our force gets there with 249 MAC airlift sortees of a mixed capability. So the number of air fields and types of air fields that are open to us increase.

In the area of the Amphibious Ships' Program, we in 1982-83, with the Navy, finally provided what I consider an analytical bridge that took us from sort of a moving target of how much amphibious force we wanted to be able to put over the beach, to a fixed target that we agreed to; that each year we would not be over there demanding more of the Navy because the Marine Corps, as you are well aware, does work closely with the Navy in development of the amphib ship program. But, rather, we would agree on what that fingerprint should be: how much cube, how much square, how many vehicles, how many helicopter spots, how many LCAC's we would carry.

We looked to the future. We looked to the programs that we were bringing on, such as the MV22A Osprey, formally JVX, OSPREY, the LCAC coming on, how we were going to plan on conducting an amphibious operation in the future.

I guess the purpose of these few remarks is to assure you that this was not just a careless, loose analysis, but rather it was a tight analysis and cut back considerably upon the amphib ship requirements, and the fingerprint it would take to go ashore in those early days of an amphibious operation with the assault echelon that the admiral speaks of.

Much of the rest of the force would come in the sealift which would come with the assault follow-on echelon. In summary, we do fully support all those programs that the admiral speaks of. We have worked closely with the Navy, in order to carry our end of the bargain as an integral part of the maritime strategy, the Corps supports the Amphibious Ship Construction Program and, in particular, the LHD-1.

You have questioned the admiral on the 3-year program. I am not qualified to discuss the dollar aspect of it, other than as a taxpayer. The savings are of great interest, but it does bring on-line, much sooner than we otherwise might have, a considerably increased amphibious capability, should we be called upon to do so.

I would urge support, of course, for the other programs which are going to give us the flexibility to let us accomplish amphibious operations if we are ever forced to do so in the future, with a minimum loss of life and a minimum loss of assets.

We are going to have to go where the enemy is not. We are going to have to take him by surprise. We are going to have to have flexibility and speed, and that is what the OSPREY and the LCAC are going to do for us, as well as the heavylift helicopter.

Sir, in conclusion, we and the Navy have a solid program that is based on a relatively conservative capability, and it allows the Marine Corps and the Navy to offer to the Nation an amphibious strategy component for the overall maritime strategy, and we urge your support for it.

[The prepared statement of General Godfrey follows:]

PREPARED STATEMENT OF MAJ. GEN. EDWIN J. GODFREY, DIRECTOR OF OPERATIONS, U.S. MARINE CORPS

Mr. Chairman, distinguished members of the committee. I welcome this opportunity to share with you my views on strategic lift and force projection.

As a result of the support provided by the members of this Committee and the entire Congress, the Commandant of the Marine Corps, General Kelley, was able to report favorably on the current and future posture of your Marine Corps. Without that support, the marked improvement of American maritime power we are witnessing could not and would not have taken place.

It is also my pleasure to appear before you with the Deputy Chief of Naval Operations for Surface Warfare, Vice Admiral Metcalf. I strongly endorse his prepared statement.

In the light of General Kelley's and Vice Admiral Metcalf's statements, I believe I can best assist by addressing in greater detail some of the issues they have presented, in order to give the Committee yet another perspective to consider.

Let me begin by saying that the Marine Corps has fully supported the objective of a 600-ship Navy. This is the minimum force required to support a maritime strategy for the furtherance of our national security objectives.

Any discussion of the maritime aspects of national security strategy must include mention of the multipurpose carrier battle force or CVBF. There can be little doubt that the foreseeable future the CVBF will remain, in the words of Secretary Lehman, "the essential core of applying force majeur to naval objectives, wherever they may be." I believe that the nature of future conflicts and the arenas in which we can expect crises to occur will continue to call for a number of amphibious force projection options. Our amphibious forces—Marine air-ground task forces, or MAGTF's, embarked in amphibious assault shipping of amphibious task forces—provide the national command authority with a truly three-dimensional sea, air, land force projection capability, working hand-in-hand with carrier battle forces and surface action groups. In peacetime, they provide U.S. presence and political leverage without automatic commitment—a distinct political advantage. Because of their mobility and flexibility, they can be used as a visible show of force, or they can cover wide areas and be shifted to meet changes in U.S. strategic interest with few constraints. In wartime, these forces represent the ultimate in naval power, capable of conducting operations over the entire spectrum of naval warfighting missions, in low- as well as high-intensity conflict.

Using amphibious forces—power projection forces—within the context of the national security strategy, what are a few of the specific programs which will enable us to better fulfill our mission?

The LHD 1 Class amphibious assault ship (multipurpose) is the keystone to attaining our MAF plus MAB Defense Guidance lift objective by 1994. This program will provide the Nation with a most capable amphibious ship. The LHD 1 Class is a manifestation of all those lessons learned in the crucible of amphibious warfare. As you well know, amphibious ships are not merely people and troop carriers. They are synergistic creations; they must be self-supporting; they must be self-sustaining; they must be survivable. Amphibious ships must provide all the vital services which the embarked landing force assault elements of the MAF and/or MAB require—command, control, communication, and intelligence facilities. They must provide facilities to operate and maintain the vital ship-to-shore assets needed to land the assault elements and to ensure a rapid buildup of combat power ashore after the initial assault has begun. They embody the tactical integrity of the assault elements—Marines embarked with their weapons, vehicles, and supplies. Last, but by no means least, amphibious ships must provide a haven for initial treatment of our wounded before they are evacuated. In many cases these emergency care facilities represent the first—and perhaps the most critical—stop in the medical evacuation chain.

The LHD 1 Class builds upon the design of the highly successful LHA 1 Class and uses many identical systems and equipments. LHD 1 is the Navy's first ship designed to fully utilize the combination of capabilities of both the landing craft air cushion, or LCAC, and the upgraded Marine Corps V/STOL aircraft—the AV-8B Harrier. The LHD 1 will also be capable of operations with the new MV-22A OSPREY when it enters the inventory.

Improvements over the LHA 1 Class include an expanded hospital facility that includes six operating rooms and up to 600 beds. The LHD 1 Class design also incorporates improved survivability features including fragmentation protection and a Collective Protection System. Three Close-In Weapon Systems, or CIWS's, and two self-defense missile systems provide AAW defense and anti-ship missile defense.

The Marine Corps fully supports the competitive multiyear procurement planned for the acquisition of LHD 2, 3, and 4. Although Defense Guidance targeted 1994 as the year the Nation will attain its MAF plus MAB lift objective, the sooner we have the assets, the quicker national security strategy in the area of sea control and force projection will become reality. The advantage created by a 33-month early delivery of these LHD's not only returns to the taxpayer an estimated 800 million dollar savings, but also provides the Navy/Marine Corps Team with ships that increase the Nation's amphibious force projection capability by 8,300 troops, 96,000 square feet of vehicles, 436,000 cubic feet of combat supplies, 210 V/STOL aircraft and nine landing craft air cushion, or LCAC.

Coupled with the delivery of the LCAC and LSD 41, early introduction of the LHD Class presents the Nation's amphibious forces with a precious opportunity to test and integrate evolving techniques for over-the-horizon, or OTH, launch of amphibious forces. The OTH launch will be a critical element in successful amphibious operations in the future. The sooner these ships are produced by our Nation's maritime industries and enter the fleet, the sooner we can hone our necessary skills.

Let me expand on the subject of the OTH launch concept for a few moments. This concept is the product of doctrinal evolution. The body of codified knowledge concerning amphibious operations represents extensive Navy and Marine Corps experience and success. However, it is evident that while amphibious doctrine is sound, our tactics, techniques, and equipment need constant review to ensure that they can meet the challenges they will encounter in the latter part of the 20th century and beyond. Current amphibious doctrine, in general, and the amphibious assault in particular, while serving as a stepping stone to the future, cannot be grasped so tightly as to inhibit the exploration, planning, and practice of alternative amphibious operational techniques. The fundamentals of amphibious doctrine have proven in battle that a strongly fortified area could be successfully assaulted over the beach. The hard lesson learned in this spurred the Navy/Marine Corps Team to seek better, more effective means for the conduct of amphibious operations. There are techniques of assault other than frontal, and the OTH is but one example.

Maritime force projection forces, embarked in highly capable assault ships, such as LHD, fully equipped with LCAC, helicopters such as the CH-53E, and the MV-22A Osprey, are capable of projecting force ashore from over-the-horizon at any point on a 1000-mile expanse of enemy coast in a 24-hour period. In 90 minutes—using the assault element of the MAF, our largest MAGTF, as an example—a force of over 8,500 men, and equipment including 280 armored vehicles, and 72 M-198 155mm howitzers—could be established ashore. The OTH launch provides an alternative to landing into the strength of the enemy. Had we had an alternative, we would not have landed directly into the teeth of a hostile beach in World War II. The OTH concept can only be made possible, however, by the successful completion of acquisition programs for the LHD, LSD 41, and LSD 41 Variant as well as the vital ship-to-shore projection assets—LCAC, CH-53E, and MV-22A.

Another area which, in view of the threat, is critical to success in maritime force projection missions, is mine counter-measures, or MCM, especially shallow water MCM. The advent of LCAC's and the concept of over-the-horizon assault will not lessen our vulnerability to mine warfare. The crucial utility of the LCAC, and their relative paucity of numbers, will require increased vigilance and skill in mine countermeasures and coordination of efforts in the amphibious objective area. As a result, the Marine Corps strongly supports the Navy's efforts to revitalize the Nation's mine countermeasure force.

The OTH launch will not lessen our requirement for naval surface fire support (NSFS). The present inventory of naval gunfire platforms is deficient both in range and lethality due to heavy dependence of 5-inch guns. To support tactical options ranging from OTH launch to the more conventional assault may require certain NSFS systems to achieve ranges in excess of 100 km.

The Marine Corps fully supports Navy near-term programs to improve NSFS lethality and accuracy—including the reactivation of the fourth *Iowa* Class battleship, the continuation of the Semi-active Laser Guided Projectile Program, and enhancements to 16-inch ammunition. For the long-term, we are working closely with the Navy to seek advanced technological solutions to support requirements for OTH assaults in the 1990's and beyond.

Although particularly suited for amphibious employment within the context of naval strategy, the Marine Corps must continue to be strategically mobile, tactically flexible, immediately available, and fully capable of executing missions which transcend the maritime role. The Marine Corps must continue to remain fully prepared to accomplish a full range of warfare mission requirements as the Nation's primary force in readiness.

We anticipate that execution of our crisis response and reinforcement roles will continue to be shaped by the realization that circumstances will neither allow additional forces to be permanently stationed overseas nor will we see a massive influx of amphibious ship construction money to lift simultaneously more than the assault echelon of a MAF and a MAB.

As a result, Marine Corps initiatives and planning actions associated with our land and maritime prepositioning programs provide alternatives to current and projected stategic mobility/force mismatches. Each program operates independently of the other but provides important force closure capability options that will be a matter of increasing concern to any adversary.

The Marine Corps' only land prepositioning is based upon a bilateral agreement, the Memorandum of Understanding, signed by the U.S. and Norway in January of 1981. Prepositioning in Norway facilitates the rapid reinforcement of the northern flank of NATO with a Marine Amphibious Brigade (MAB) of approximately 13,000 Marines and 155 aircraft specifically tailored for this theater. It is a strategic mobility enhancement program that reduces the overall requirement for strategic airlift. The program involves the prepositioning of selected mission essential equipment and 30 days of supply in Norway.

The operational concept is designed for an airlifted MAB to fly into the reception airfields in central Norway—prior to hostilities—aboard a minimum number of strategic airlift sorties, immediately marry-up with equipment and supplies pre-stocked nearby, and redeploy to threatened areas of Norway as required. This land prepositioning in Norway is neither a substitute for amphibious assault nor a change in traditional roles or missions of the Marine Corps. It contributes to our maritime strategy designed to keep the vital US-NATO Europe sea lines of communication open. Maintenance of material is performed by Norway subject to quality control inspection and reimbursement by the USMC, without a single Marine being posted in Norway in support of the program.

We are proceeding on schedule. Annual equipment deliveries continue, and this month we mark our second exercise of both this concept and the equipment already prepositioned. We will continue to do so annually as part of our plan for increasingly complex exercises each year through 1989. I am pleased to add that this program is a top defense priority for the Norwegians, who are providing an unprecedented level of support.

Our other prepositioning program, the Maritime Prepositioning Ships, or MPS Program, became a reality earlier this year. Like our Norway program, MPS is a mobility enhancement initiative which offers a particularly attractive option in today's international environment. MPS is particularly suitable for preemptive employment in situations where forcible entry may be neither required nor desired. In addition, MPS will also be capable of providing rapid reinforcement to previously committed amphibious forces. When the last of three squadrons becomes operational in fiscal year 1986, MPS will provide our Nation a rapid response, global capability with a credible force that is distinctly naval in character.

MPS will replace the Marine Corps contingent of the Near Term Prepositioning Force, or NTPF, currently stationed in the Indian Ocean. MPS offers significant improvements over the NTPF. It will utilize 13 ships which have either been specifically built or converted to support the unique requirements of this program. Capabilities of these ships will include roll-on/roll-off, spread loading, limited selective offload, temperature/humidity controlled spaces, integrated equipment maintenance spaces, and redundant command, control, and secure communications. In addition, MPS will employ an on-board maintenance concept which will reduce the amount of ship off-station time currently experienced with the NTPF. Most important, however, will be the capability the MPS will have for in-stream offload, thereby eliminating the requirement for port facilities, and vastly increasing the number of locations in the world where the concept can be employed.

The MPS ships will be assigned to three 4- or 5-ship squadrons. Each squadron will contain 30 days of prepositioned supplies and equipment capable of supporting the most powerful brigade ever assembled by the Marine Corps. In the event that MPS is committed, the ships would move to the designated point and commence offload. Troops would be airlifted in for subsequent marry-up with the supplies and equipment. Our objective is to achieve a combat capable force in 10 days or less. Intermediate maintenance support for the aviation combat element of the MAGTF would be provided by an aviation logistic support ship called a T-AVB, two of which are programmed for delivery in fiscal year 1986. By transporting the large number of maintenance vans and spares that are too expensive to preposition but are required to support the aviation combat element of the brigade, each T-AVB will save 160 strategic airlift sorties. Additionally, the intermediate maintenance activity can be made partially functional aboard ship while the T-AVB is still enroute to the objective area.

Although MPS can never be expected to replace amphibious forces for power projection when forcible entry is required, it does not preclude the use of MPS as reinforcement in amphibious situations—the two capabilities are complementary.

Before closing, permit me to briefly cite two other programs which we in the Marine Corps support and which will serve to enhance our strategic lift and force projection capability—the Auxiliary Crane Ship, or T-ACS, and the Air Force C-17.

The T-ACS will be very important to the offload of the assault follow-on echelon, or AFOE, of the MAF and MAB. The AFOE is that echelon of assault troops, vehicles, aircraft, equipment, and supplies which, though not needed to initiate the assault, is required to support and sustain the operations ashore. In order to accomplish its purpose, the AFOE is normally required in the objective area no later than five days after commencement of the assault landing. The AFOE is embarked in Military Sealift Command controlled commercial ships, which may be government-owned and chartered or requisitioned from the private sector. Many of these commercial ships are not "self-sustaining," or capable of self-off-load. Accordingly, the T-ACS will fill a vital role; ensuring a continuous flow of AFOE equipment, personnel, and cargo to build up combat power ashore.

The development and procurement of the C-17 will provide an enhanced lift capacity well into the 21st century. The C-17 will add a great deal of flexibility to the Nation's ability to respond quickly to any part of the world. The C-17 will carry the same oversized cargo as the C-5 and will land on a C-130 capable airfield. It will carry approximately twice as much cargo as a C-141.

In summary, let me say that naval superiority, like Neptune's trident, is based on three points—strategic deterrence, sea control, and force projection. While an amphibious strike capability enhances U.S. credibility and offers expanded options in each mission area, it is the latter two—sea control and force projection—which offer the broadest range of opportunity for application of the amphibious option.

Sea control, a derivation of the traditional phase, control of the sea, acknowledges the limitations on ocean control brought about by the advanced development of the submarine and the airplane. It also acknowledges the growing naval strength of the Soviet Union and can be viewed both strategically and tactically from two directions—denying the enemy the right to use some seas at some times, and asserting our own right to use some seas at some times.

Force projection, in its purest sense, is concerned with the impact of naval forces—amphibious, naval bombardment, and tactical air—on land forces or objectives.

For sea control, the carrier battle force remains the backbone of offensive naval striking power.

For force projection, it is the Marine air-ground task force which presents the ultimate option for projecting the will of the naval commander ashore. Like the carrier battle force, the MAGTF is a synergistic creation, formed by task organization and operational training. In both cases, training, structuring, and logistic packaging are aimed at preparing for a single objective—readiness for combat on arrival. The steadfast utility of both forces is the readiness to respond with the capability to do whatever needs to be done with a total, integrated force sized to accomplish the mission. The carrier battle force and the Marine air-ground task force embarked in amphibious assault shipping have been the principal military response in crises over the past forty years. In the approximately 250 crises to which the United States responded during that period, naval forces have been used in over 200 of these events, and amphibious forces in 80 percent of those instances.

For the MAGTF to optimize its effectiveness; for the MAGTF to have the strategic mobility to effectively operate with the carrier battle forces in sea-air-ground strike and power projection operations in support of the Maritime Strategy; its assault echelon must be embarked in capable amphibious assault shipping. In that respect, the efforts of the Department of the Navy, directed toward our goal of maritime superiority—which includes programs essential to amphibious warfare—are strongly supported.

Mr. Chairman, that concludes my statement; I am prepared to entertain your questions.

Senator COHEN. Thank you very much, General.

You talked about reducing fingerprints. In the LCAC program, the procurement has gone up from 9 to 12 this year. We have increased the fingerprint a little in terms of the requirement.

General GODFREY. When I speak of the fingerprint, I am speaking of how much in total that the Marine Corps and the Navy agreed it would take in terms of total millions of cubic feet of cargo, number of vehicles, square feet on ships, the number of helo spots on ships, in order to land a Marine Amphibious Force and a Marine Amphibious Brigade.

However, on the question of the LCAC buy, I would defer to the admiral, but I believe that was driven by competition and the ability to complete it—was it not?

Admiral METCALF. That has been the plan for a number of years.

Senator COHEN. To compete the LCAC?

Admiral METCALF. To compete it.

Senator COHEN. Multiyear?

Admiral METCALF. To compete but not to multiyear. We are going to have a second source and compete it but the multiyear aspect is not a part of it.

Senator COHEN. Did you look at that as to whether that would be desirable in that case?

Admiral METCALF. Desirable in what case?

Senator COHEN. Multiyear procurement.

Admiral METCALF. I will have to answer that for the record. I am sure we have.

Senator COHEN. If you would submit that.

[The information follows:]

LCAC PROCUREMENT

Multiyear procurement of LCAC's has been considered, along with other alternatives. It has been determined that greater benefit could be expected from introduction of a second source. Once the second source is established a competitive multiyear procurement could be desirable.

Admiral METCALF. I would support anything that would get them cheaper, sir.

Senator COHEN. The CBO, for example, has recommended that if there were a freeze in defense spending similar to what the Budget Committee did, that you should be held to 9 instead of 12. I would like to know for the record what that does to unit costs.

Admiral METCALF. Yes, sir; we will provide that.

[The information follows:]

LCAC PROCUREMENT

This approach was utilized during the preparation of the fiscal year 1985 Navy program when the quantity was reduced from 12 to 9—a 25 percent reduction in quantity. The PMP submitted to accommodate this reduction reflected a total cost savings of only 13 percent while the unit cost per craft increased by 16 percent. A similar reduction in the fiscal year 1986 buy could be expected to produce less of a savings due to the fact that the Navy intends to establish a second source for the production of LCAC this year. The total buy will be split between the prime contractor, Bell Aerospace Textron and the winner of the Todd/Lockheed second source competition. Dropping the total rate to 9 will result in an inefficient production rate for both producers, thereby driving up the unit cost.

Senator COHEN. Captain Kesteloot.

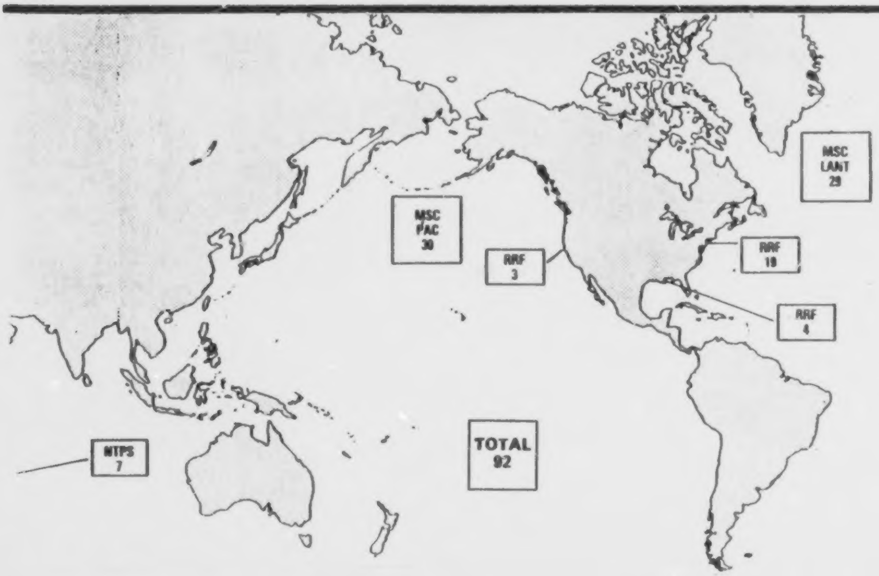
Captain KESTELOOT. Good morning, Mr. Chairman. I appreciate the opportunity to be before this committee. I promise to be brief.

Today I would like to show you just three very quick slides, because I believe they make an important point.

We are making progress in strategic sealift. We are making progress that is almost unbelievably swift in our planning, programming, authorization, and appropriations world that sometimes moves at an agonizingly slow pace. Some of the programs which this committee authorized only 2 years ago are already in being.

While our progress has been spectacular, I would caution you to bear in mind the solutions we have sought are short-term in nature. The Ready Reserve Force, for example, can only be viewed as an interim fix. These ships, averaging 17 to 20 years of age, will become obsolete. All at one time. If we do nothing to stimulate the U.S. Merchant Marine over say, the next 25 years, we will have a mortgage to face at that time that will be staggering.

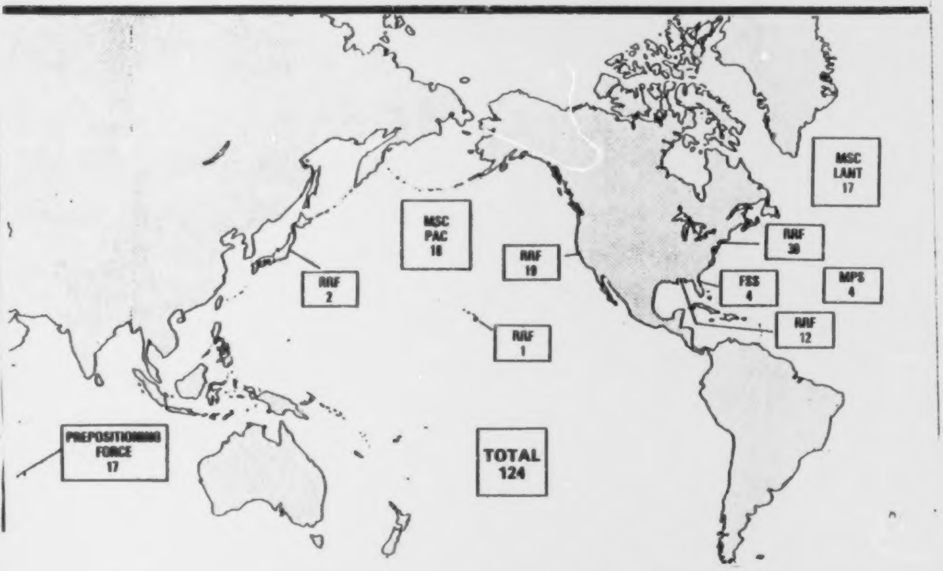
STRATEGIC SEALIFT ASSETS
1980



The first slide, sir, shows where we were in 1980. We had started the first of the maritime prepositioning force with seven ships in Diego Garcia. Note the MSC Fleet. That is that portion devoted to point-to-point service, and therefore is useful for sealift, numbered only 59 ships then. We had a rather small Ready Reserve Force of 26 ships. Our total Government-controlled assets were 92 ships back then, sir.

Our primary reliance has been, and will continue to be, on ships of the U.S. flag merchant marine, but they are declining at a very rapid rate. We as military planners must do what is necessary to ensure the availability of shipping to support our forward strategy.

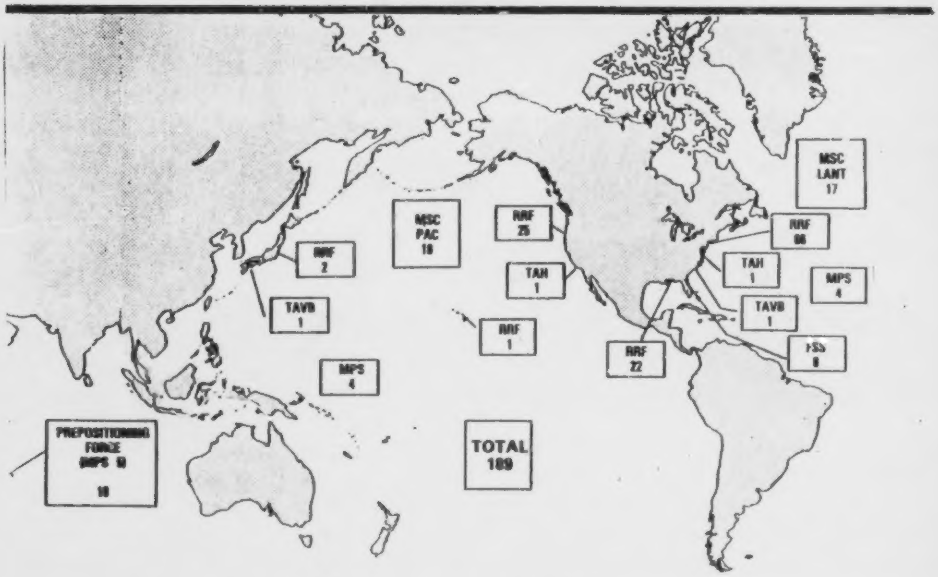
STRATEGIC SEALIFT ASSETS
1985



This is our status today: 124 ships. Note that in the meantime the MSC controlled fleet for sealift assets has shrunk to 35 ships, while other programs have come on line. This reduction, incidentally, in the MSC fleet reflects a conscious effort on the part of the Navy to contract out more of our sealift requirements to the private sector, the U.S. merchant marine.

The prepositioning force in the Indian Ocean is up to 17 ships; 4 of the former SL-7s, our fast sealift ships, are on berth; and first of the maritime prepositioning ships are ready in the Atlantic, and the RRF is up to 64 ships. I might add at this point, when my predecessor, Admiral Avrit reported to this committee last year, he reported 32 ships in the RRF. So in 1 year, we have doubled the size of the RRF, and that does not count the 11 ships we recently procured, which when we add to what we already have will bring us up to 75 ships before the end of the year.

STRATEGIC SEALIFT ASSETS 1990



By 1990, and in my opinion more likely by 1988, our strategic sealift assets under Government control will approach 200 ships. With MPS squadrons in the Atlantic, Pacific, and Indian Oceans, our ability to rapidly project deterrent forces will be greatly enhanced. Ships of the RRF, including such specialized ships as the hospital ships, the crane ships, and the aviation support ships, will be ready on berth in 5 to 10 days and will be able to respond to contingency or war requirements.

Sir, I am very pleased to be able to report positive progress to you today. I am not so pleased that our programs have not done more for our merchant marine industry, which in the final analysis is, and will remain, the fourth arm of defense; but we do what we must do.

I thank you for your past support of strategic mobility in general, and your support of strategic sealift in particular, and I solicit your continued support.

Senator COHEN. Thank you very much, Captain. I think you do have one of the greatest stories to tell the subcommittee here.

I still am concerned about what is taking place with the merchant marine. The commercial trends in the design of those ships would seem to be contrary to accomodating any rapid military conversion. I would assume that these trends are likely to continue, absent some sort of a national policy to encourage them to do otherwise.

Captain KESTELOOT. Well, it is a case of the industry looking for the most economical way to move cargo. Back in the 1970's, early 1970's, and late 1960's, three kinds of ships came into the marketplace. They were the barge carriers, the RO/RO's, and the containerships. Clearly Malcolm MacLain with U.S. Lines was the farsighted one, because he started into containers in a big way, and that type of ship has emerged as one of the preeminent form of intermodal transportation today.

Now what has dropped out are the useful break-bulk ships, the RO/RO's, and the barge ships. The few barge ships that are in the market today are struggling for survival. We already have 3 of them for the RRF, and another 4 of those ships are under charter to us in the Indian Ocean, and that is 7 of the existing 17. Two of them are laid up from Waterman. The remainder are struggling.

There are very few RO/RO's, and that is one of the reasons RO/RO's are such a high priority to us to move particular Army equipment.

Senator COHEN. What kind of engines are on those ships being put in the reserve? What sort of equipment? Is it old?

Captain KESTELOOT. Most of them are steam-driven ships that are no longer economical. They cannot make a buck with them out on the trade routes, and we take them because they are in good condition.

Now we did just recently buy ships. Among those were five RO/RO's which were only 12 years of age each, and they are diesel propelled, but they are second generation, and that particular company wants to go to a third-generation of RO/RO ships.

Senator COHEN. Is there any risk that we are going to be buying these old ships and then not have a trained manpower pool to operate them?

Captain KESTELOOT. Out through the 1990's, there are enough merchant mariners to man these ships. The reason for that is the current practice of merchant mariners working 6 or 7 months a year, and then off for 5 or 6 months. Right now, that creates a mariner-to-billet ratio of 2.5 people per billet. So in time of war, you would simply take those who were not sailing at the time, and we keep general agency agreements with operators, and they have in turn agreements with the union halls whereby they can get people to man the ships of the RRF.

The breakpoint comes if you get down to where you have a man-to-seafarer billet ratio of about 1.4. At that point, even in a wartime scenario where you stop vacations and stop turnover of people, you get to a point where you have trouble manning the ships. The last slide I showed you had 189 ships on it. Those are Government-controlled ships. Some of them are laid up and unmanned.

Some of them, like the MSC fleet, are operating, and some of them are in what we call a reduced operating status. The best example of that is the SL-7. The number of billets associated in peacetime with those ships is about 2,000. In wartime, when you activate them all, plus the RRF, it is 7,000. So you immediately are out in the marketplace looking for 5,000 merchant mariners if you decide to mobilize. But we see that there are enough in the force to take care of that through the 1990's.

Senator COHEN. You mentioned there are ships under effective U.S. control that would be in addition to the strategic reserve ships. What are these ships? Where are they? What are they?

EUSC SHIPS

Captain **Kesteloot**. The ships that are under effective U.S. control are frequently referred to as EUSC ships. These ships are requisitionable assets available to the U.S. Government in time of national emergency. They are ships majority-owned by U.S. businesses operating under the registries of four nations: Liberia, Panama, Honduras, and the Bahamas. These four countries, unlike most others, do not have laws which preclude or limit requisitioning. EUSC ships number over 400, but only 23 dry cargo, and 57 tankers are considered militarily useful.

Senator **Cohen**. So you would not see a problem, then, given the kind of control we have with respect to those countries? What if you had a conflict in the Middle East, where some nations might not be as eager to turn over those ships to the United States for our use?

Captain **Kesteloot**. I personally have no reason to doubt their availability. These ships are owned by U.S. citizens. Therefore, I have no doubt they would be made available. The crews have, in most instances, been sailing for these companies for many years, and they have a high degree of company loyalty. After all, they have enjoyed continued employment. The owners of these ships tell me that they do not have any doubt about that.

However, should there be an isolated case here or there where a crew, for example, declined to sail on a certain mission or to carry a certain cargo, we could always take that ship on a bare boat charter and recrew it with a U.S. crew.

MERCHANT MARINE

Senator **Cohen**. Last year we mandated a commission to study the merchant marine and our country's defense requirements. What role is the Navy playing in that study?

Captain **Kesteloot**. A very active role. As you know, Secretary Lehman has been designated as the Director of the Commission, and is very much interested in its findings.

Senator **Cohen**. Has there been any progress made to date? I keep getting the question, what are we doing about the merchant marine? I do not know. I do not know what to tell anybody today in terms of what the status and the future of the merchant marine is.

Captain **Kesteloot**. The Secretary has nominated five members for the Commission. He has obtained the concurrence of Congressman Bennett, and has forwarded those nominations to the President. A Navy captain has been nominated and recalled to active duty to serve as chief of staff to Mr. Wayne Arny, the Principal Deputy Assistant Secretary of Navy for Shipbuilding and Logistics.

Senator **Cohen**. That name sounds familar to me.

Captain **Kesteloot**. I thought it would, sir. It is this segment of the Navy staff that will provide primary staff support to Secretary Lehman. However, for the moment we are at a standstill, because the Bennett Commission, while authorized, has never had any funds appropriated for it.

Senator COHEN. That sounds like standard operating procedure in this place.

[Prepared statement of Captain Kesteloot follows:]

PREPARED STATEMENT OF CAPT. ROBERT W. KESTELOOT, U.S. NAVY, DIRECTOR, STRATEGIC SEALIFT, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Mr. Chairman and members of the committee, I am Captain Robert W. Kesteloot, USN, the Director of Strategic Sealift for the Chief of Naval Operations. It is a distinct pleasure to appear before this committee and report on our progress in achieving the requisite amount of sealift capability to project military forces in support of national security objectives

THE STRATEGIC SEALIFT REQUIREMENT

My Division, Strategic Sealift, is relatively new. It was formed a year ago January in recognition of our growing responsibilities. One year ago this month, Secretary Lehman made Strategic Sealift a third major function of the Navy along with Sea Control and Power Projection. His action emphasized the increasing importance of Strategic Sealift to overall military capability. In clarifying this supporting role, the Chief of Naval Operations defined Strategic Sealift as "The afloat prepositioning and ocean movement of materials, petroleum, oil and lubricants (POL), and personnel in support of assigned logistic support missions of the U. S. Government, including the necessary cargo handling systems and personnel to ensure delivery of cargo ashore." The scope of the Navy's Strategic Sealift Program has also been broadened to encompass multiservice needs, ensuring compatibility with Army and Marine Corps cargo handling capabilities and with in-theater means of transport to the front line.

The global military strategy of the United States is forward defense. This strategy requires a combination of forces predeployed overseas, equipments prepositioned in forward areas, and the capability for rapid deployment of forces from United States bases. A balance of three military mobility elements -- airlift, sealift, and prepositioning -- is required to land and sustain U. S. Army, Air Force, and Marine Corps forces overseas. Airlift, assembled within hours, can speed troops and limited amounts of high priority equipment and supplies to their destinations. Airlifted troops then will join with materials and equipment lifted concomitantly or with materials prepositioned ashore or afloat. Sealift, which is capable of responding within the required delivery dates, will transport large quantities of equipment, supplies, and ammunition to sustain military operations, independent of port facilities of any kind. Therefore, the mobility elements are interdependent with, and complementary to, each other. Each has its own advantages and disadvantages, but is highly dependent on conditions at destinations -- airports, seaports or beachheads if required. Airlift is a U.S. Air Force responsibility; sealift is a Navy responsibility; prepositioning is a joint responsibility.

Strategic sealift support for a contingency can be generally grouped into three broad categories of shipping; namely prepositioned, surge and resupply, listed in order of responsiveness. Military equipment, loaded aboard ships and prepositioned near a contingency area, can be rapidly delivered to forces airlifted into the theater of operations. Surge shipping lifts the bulk of the CONUS-based equipment and initial sustaining supplies. Resupply shipping immediately follows to meet daily consumption rates and build up of reserve stock levels. The typical time phasing of daily tonnage requirements from prepositioned, surge and resupply shipping is indicated in Figure 1. Surge shipping peaks, then trails off as combat forces are delivered in-theater; resupply rates increase as force levels grow, then taper off to consumption rates after in-theater stock levels are attained.

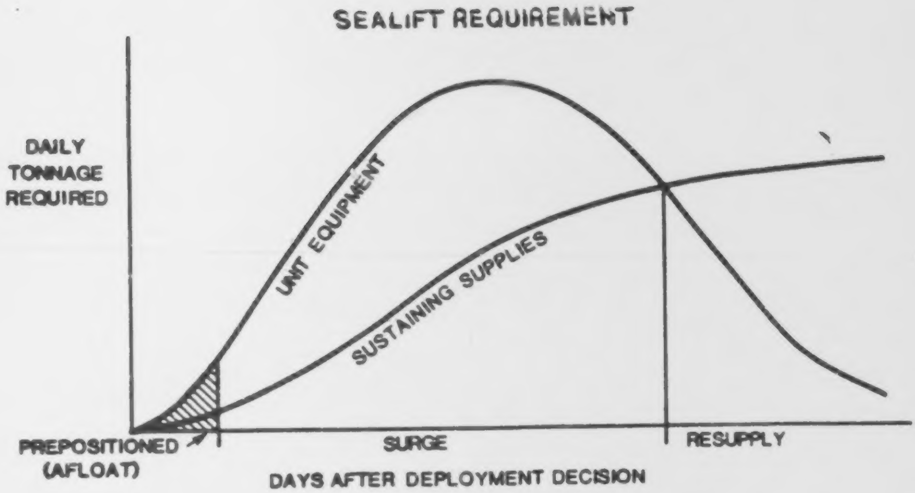


Figure 1. TIME PHASING OF SHIPPING CATEGORIES

Major contingencies involving the United States, such as a Soviet invasion of our NATO allies or oil-producing countries in the Persian Gulf, would require all available U.S. flag ships. The sizing requirements for the Navy's Strategic Sealift Program are based upon a global war scenario that starts initially in Southwest Asia. One may argue whether this is a plausible scenario, but the important fact is that it is a demanding one that is useful for purposes of force sizing. The challenge to strategic sealift is the availability of sufficient lift capability to meet phased material delivery requirements.

The Military Sealift Command operates about 35 ships in support of Defense Department peacetime shipping requirements that would be useful as strategic sealift assets in time of war. MSC, by policy, operates a decreasing number of government-owned cargo ships and meets DoD shipping needs largely by chartering commercial ships manned by civilian mariners.

U.S. flag merchant ships engaged in trade are also responsive to DoD shipping needs. They can be obtained under voluntary charter, through implementation of the Sealift Readiness Program (SRP) or by requisitioning. The SRP is a voluntary commitment of some ocean carriers' ships for contingency use under conditions short of mobilization. When determined necessary for national defense, the President may authorize the Secretary of Transportation to requisition needed U.S. flag shipping to support crises or war efforts.

When the demand for sealift assets exceeds the capability of MSC and available charters from U.S. flag carriers, the Ready Reserve Force (RRF) becomes an increasingly important source of surge and eventually resupply shipping. The RRF is maintained for Navy by the Maritime Administration (MARAD) as a part of the National Defense Reserve Fleet (NDRF) in a five, ten or twenty-day readiness status. RRF ships are activated by a request from Navy to the MARAD. RRF ships are exercised frequently through no-notice testing to assess compliance with the readiness criteria. The acquisition and maintenance of RRF ships is performed by MARAD with funds provided by Navy. The RRF currently numbers 64 ships. Eleven others are in the process of being inducted into the RRF and were procured with funds provided by the FY-84 Supplemental Appropriation and the FY-85 Defense Appropriation. In 1982 we established a goal of a 77 ship RRF (61 dry cargo ships plus 16 tankers), but the decline of the U. S. flag fleet has been more precipitous than expected. As a result of a resizing study completed last December and currently under review by an OSD Mobility Steering Group, we now project the RRF requirement to be 100 dry cargo ships plus the 16 product tankers. The requirement for tankers is also expected to increase upon completion of the OSD Tanker Study.

Effective U. S. Controlled Fleet (EUSC) ships are requisitionable assets available to the U. S. Government in time of national emergency. They are ships majority-owned by U. S. business and operating under the registries of four nations -- Liberia, Panama, Honduras and the Bahamas. These four countries, unlike most others, do not have laws which preclude or limit requisitioning. EUSC ships number over 400, but only 23 dry cargo ships and 57 tankers are considered militarily useful.

In support of a major U. S. military commitment to NATO, a 600 ship pool of NATO member nations is available for U. S. use during preconflict periods of increased readiness. These ships are managed by NATO's National Shipping Authority, which has authority to allocate ships among the NATO member nations. Following outbreak of hostilities in a major NATO war, upwards of 1200 additional militarily useful NATO shipping assets would become available for mutual support.

DoD deployment planning is based on inserting forces into austere environments. There will be limited or no port facilities available to move cargo ashore. Sealift planning is therefore challenged by the need to be self-sustaining in offload and delivery of a wide range of dry cargo and bulk liquids. Figure 2 displays the scope of the planning requirements.

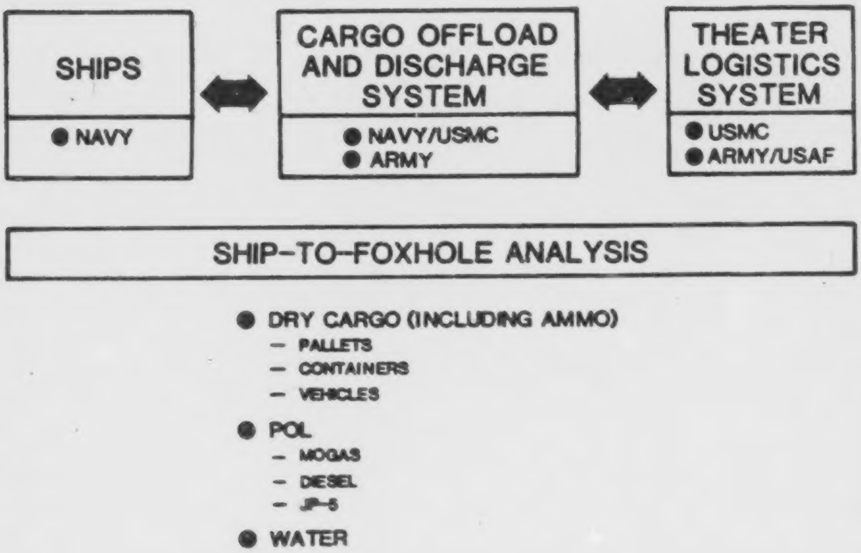

SHIPS
● NAVY
CARGO OFFLOAD AND DISCHARGE SYSTEM
● NAVY/USMC
● ARMY
THEATER LOGISTICS SYSTEM
● USMC
● ARMY/USAF
SHIP-TO-FOXHOLE ANALYSIS
● DRY CARGO (INCLUDING AMMO)
– PALLETS
– CONTAINERS
– VEHICLES
● POL
– MOGAS
– DIESEL
– JP-5
● WATER

Figure 2. SHIP-TO-SHORE CARGO MOVEMENT

Ship-to-shore operations are a joint Army, Marine Corps and Navy responsibility for acquisition, employment and transit. Ship discharge, and movement of cargo ashore is a joint responsibility, depending on cargo ownership. Navy and Marine Corps cargo will be offloaded by Navy; Army and Air

Force cargo, by Army. Cargo offload and discharge systems of the Army and Navy need to be compatible to permit flexibility in planning the employment of sealift. Army and Navy are actively pursuing interoperability as well as program balance to assure that adequate assets are available to take the sea-lifted cargo ashore. In 1984, a Memorandum of Agreement concerning cargo offload and discharge operations was signed by the logistics chiefs of both services thus institutionalizing the manner and degree to which the services will work with each other.

As shown in Figure 2, dry cargo, POL and water is delivered to the operational theater logistics systems for onward movement to forward areas.

The first step in ship-to-shore operations is positioning of ships in the discharge area. Open seaways, exposed to wind and waves, can pose serious hazards to discharge operations. Protected waters may be limited. Ships must be anchored or moored. Anchoring spreads ships over a wide area and increases exposure to small craft operations. Mooring is more difficult, but permits better use of limited sheltered waters, and usually reduces transit time to the shore.

Self-sustaining ships can discharge directly to lighterage, or in the case of barge ships, launch barges for tow ashore. Nonself-sustaining ships, primarily containerships, need assisting discharge systems -- Auxiliary Crane Ships (TACS) or a mobile crane mounted on deck. Roll-On/Roll-Off (RO/RO) ships under favorable weather conditions can drive off vehicles onto lighters, otherwise lift-off discharge is required. In all cases, in-the-stream discharge is strongly affected by sea state, which impacts throughput productivity rates and can even completely halt ship-to-shore operations.

Adequate lighterage, shoreside cargo handling equipment and skilled cargo handling and lighterage personnel are absolute requirements for conduct of efficient ship-to-shore operations. All must be on the scene before discharge operations can commence. Lighterage is bulky and heavy. A large number of units are needed, yet few ships are configured to carry it. This year's budget request contains funding for a modular causeway that can be disassembled into units that will fit into the container cells of a containership without modification to the ship. We are learning how to use commercial ships with military features installed so that they can perform a military mission in time of war or other contingency.

Discharge operations are planned to be conducted in two 10-hour shifts per day. Multiple ships are simultaneously discharged. Adequate logistics support to personnel and equipment is required to sustain round-the-clock operations.

Operational control over lighterage discharge operations requires communications between discharging ships, lighterage and beach control, adherence to procedures and adequate navigational aids.

Lighterage consists primarily of sets of ferries composed of powered ccauseway sections married to multiple non-powered sections. Ferries are configured for beaching. Pallets are off-loaded from lighterage by forklifts or lifted off by cranes. Vehicles are driven off the lighters. Containers, because of their size and weight, are not easily handled at the beach. Difficulties of moving containers across the surf line can be overcome by employing a roadway composed of special causeway sections raised above the surface of the water which we call an Elevated Causeway, or ELCAS.

Delivery of adequate quantities of POL and water ashore needs to be assured. In the early stages of operations POL is delivered as packaged cargo in drums and as cargo in tanker trucks. As unit equipment is delivered ashore, POL consumption soars, outstripping initial delivery of drummed POL, and must be rapidly followed by installation of bulk fuel systems to discharge POL from ships moored offshore. An interim bulk system, the Amphibious Assault Fuel Supply Facility, will be installed by Tank Landing Ships (LST's). A commercial flexible non- buoyant pipeline and mooring system, brought in by arriving tankers, will provide the sustained bulk fuel delivery capability. Tankers will then pump their cargo to the shoreside staging area.

Ship-to-shore discharge systems were operated in the 1984 Joint Logistics Over-the-Shore Test (JLOTS). These systems were operated by Army and Navy and Marine Corps field command units who would be involved in a regular contingency deployment. JLOTS also included Air Force participation where Air Force personnel performed data collection and were members of observation teams. In JLOTS, problems surfaced, solutions were found, and procedures were operationally tested and adjusted. A high confidence level for ship-to-shore operations was established. It was found that Strategic Sealift systems for ship-to-shore operations can satisfy operational requirements. Looking ahead, these systems will be improved and receive additional testing in future exercises. Concurrently, Army and Navy are actively soliciting the participation of industry in addressing ship-to-shore operations. This past year, in conjunction with the Maritime Administration and the Army, we have conducted five seminars with industry on such subjects as use of commercial tugboats, merchant ships and their enhancement features, cargo offload and discharge operations, merchant marine manpower and training, and the shipbuilding and ship repair industry. The knowledge and experience gained from these commercial sources will be adapted, further refining service systems and procedures.

Keen competition in the international shipping community has forced all surviving shipping companies to scrutinize costs of operations continually. The quest to minimize operating costs led to containerization, larger ships, and smaller crews. This is especially critical for U. S. cargo carriers because their capital (shipbuiding costs) and labor costs are higher than their foreign competitors, most of whom are subsidized by their governments.

Over the past 20 years, the composition of the U. S. dry cargo merchant fleet has changed. Intermodal ships (container, roll-on/roll-off [RO/RO] and barge vessels) were introduced, replacing self-sustaining breakbulk ships. Large nonself-sustaining containerships now comprise the bulk of the U. S. dry cargo fleet lift capability. RO/RO ships are marginally competitive and their numbers are decreasing. Barge ships, which entered the fleet in the early seventies, are also marginally competitive and can be expected to decrease in numbers as unprofitable routes are dropped. In general, this changing composition has resulted in a declining number of militarily useful dry cargo ships, but with an overall lift capacity that has somewhat stabilized as shown in Figure 3.

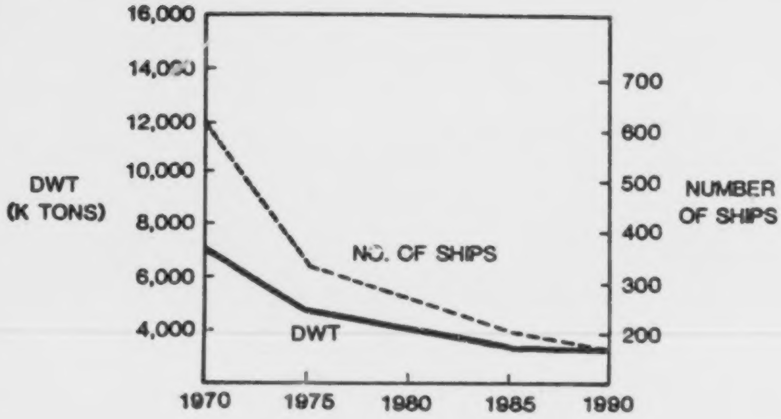
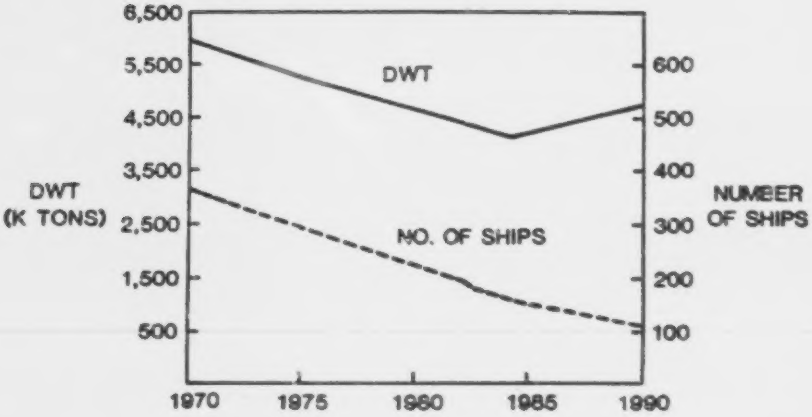


Figure 3. TRENDS IN U. S. FLAG FLEET
MILITARILY USEFUL DRY CARGO SHIPS

Tankers have also grown in size and capacity and operate with smaller crews. Smaller, handy size tankers have been replaced by fewer of the very large tankers. The number of world ports capable of handling these large, deeper draft tankers is small. Thus, the military utility of large tankers requires careful planning to ensure light loading to a desired draft and a ship size that is compatible with fuel berths used by the military. Reflecting these large sized ships, the lift capacity of militarily useful product tankers is projected to rise somewhat in the late 1980's, as shown in Figure 4, even though the number of ships is expected to decline further.



Figuire 4. TRENDS IN U. S. FLAG FLEET MILITARILY USEFUL PRODUCT TANKERS

I do not wish to belabor the obvious, but the foregoing tutorial was intended to make the following points:

- There are three aspects of strategic mobility:
  - -- Prepositioning, airlift and sealift.

- Getting the material there is only half the job: it then has to be offloaded and moved forward to where it's needed.

- To avoid bottlenecks in the forward mobility flow, all elements of the logistics equation must be provided for -- to delete programs, either within Navy or in other Services, unbalances the program.

THE NAVY STRATEGIC SEALIFT PROGRAM

Military requirements for sealift have expanded with the recognition of the global nature and extent of national interests to the increased threat. At the same time, the lift capacity of the U. S. flag merchant marine has declined to the point where it no longer can fully meet the time-phased deployment requirements of the military. Although DoD places high dependency on militarily useful commercial shipping for sealift in a contingency, the declining lift capacity of the U.S. merchant marine has forced DoD to initiate least-cost programs to offset this decline and meet sealift requirements. The Strategic Sealift Program encompasses a combination of ship platforms and related sealift support systems. Each part of the program is based on specific sealift requirements: Ships to offset that capacity not available from commercial sources, ship equipments needed to enhance the military utility of merchant ships, and cargo offload and discharge systems to move material from ships offshore or in ports of varying capabilities.

The Sealift Platforms portion of the Strategic Sealift Program provides ships for the prepositioning and surge roles. Prepositioning Forces consist of ships in the Indian Ocean and Mediterranean, formerly known as the Near Term Prepositioning Force. In addition, the Maritime Prepositioning Ships (MPS) are beginning to deliver. We currently have three ships operating in the Atlantic with two others going through loadout and training. This year we will complete the deployment of the first MPS squadron in the Atlantic, carrying the equipment and 30 days of supply for a Marine Amphibious Brigade. Later this year, a second squadron will deploy to the Indian Ocean and replace five ships of the NTPF. The third squadron will deploy to the Western Pacific in late 1986. The deployment of these three squadrons represent the greatest improvement in reaction response this country has ever witnessed. The budget request contains $574.1 million for Prepositioning Forces.

Surge ships fill the need for early lift of military cargo. The TAKR, formerly the SL-7 but now known as Fast Sealift Ships (FSS), are maintained in a high readiness state and can project forces anywhere in the world at a sustained speed of about 30 knots. Procured in FY 1982, four of these ships have been converted to partial RO/RO and have already participated in three exercises. They are kept in a four-day readiness status in East and Gulf Coast ports. Four more will complete conversion by March 1986. The procurement and conversion of these ships were funded in previous years. This year's request contains $27.4 million in order to maintain these ships in their high state of readiness.

The first of two TAVB's, or aviation maintenance support ships, is currently undergoing conversion in Galveston, Texas. These ships are intended to provide aviation maintenance support to a deployed marine Air Combat Element of a Marine Air/Ground Task Force. The alternative to these two ships was a spare parts package costing more than a billion dollars that would have had to be airlifted. $26.9 million has been requested in order to convert the second of these two ships.

Our most spectacular progress has been made with the Ready Reserve Force. Last year at this time we had 32 ships in the RRF. Today, we have 64 and are about to add 11 more. This year's budget request asks for $203.4 million to procure additional ships for the RRF. Until the merchant marine industry of this country regains its vitality, the RRF will be the insurance we need to project forces and sustain them. Also in this budget is $85.3 million for the maintenance and testing of ships in the RRF.

The first hospital ship, TAH, is now in conversion in San Diego, California. The program consists of converting two commercial tankers to TAHs with 12 operating rooms and 1,000 beds in each ship. When completed in 1987, these two ships will provide a forward-deployable, sea based, mobile acute care medical facility in support of amphibious or other miltary operations in an overseas operating area. These ships provide on-site emergency care. The first ship, SS MERCY TAH-19, is scheduled for delivery in late 1986. SS COMFORT TAH-20, started her conversion this month with delivery planned for mid-1987.

The Auxiliary Crane Ship, TACS, is both a surge shipping asset and a ship of the RRF. It can carry significant amounts of cargo and can be used in the objective area to offload nonself-sustaining cargo ships where port facilities are non-existent or inadequate. TACS are C-5 and C-6 class containerships, with two or three twin boom marine heavy lift cranes and SEA SHEDs. They are capable of offloading the existing 75-110 ton lighters, containers of all sizes, wheeled and tracked vehicles up to M-1 tanks from ships with beams up to 105 feet. TACS-1, the KEYSTONE STATE, delivered in 1984 and was extensively tested during JLOTS II. It performed to our highest expectations and was the true centerpiece of the exercise. TACS-2 is currently undergoing conversion in San Francisco. This budget request contains funding for three more TACS conversions amounting to $82.5 million.

The Navy's charter to provide strategic sealift includes the requirement to closely interface with the Army and the Marine Corps to achieve a throughput over-the-shore balanced with cargo deliveries by ship. This budget request contains funding for four elements characteristic of the dry cargo segment of cargo discharge: Ship discharge systems, a variety of lighterage concepts, unique beach interface systems and a variety of ship and shoreside cargo handling equipments. All must be kept in balance in order to avoid bottle necks in throughput capability. I should add that Navy has experienced cuts in lighterage programs over the past three years and, as a result, today's capability to offload the Assault Follow-On Echelon of a Marine Amphibious Force is tenuous. The amount requested is $57.1 million.

The first of our commercial offshore POL delivery systems is in production now with first article tests programmed for this coming fall. This is a cooperative effort between Navy, the Maritime Administration and the Army to field a system capable of discharging commercial tankers up to 70,000 deadweight tons moored offshore at distances of up to four miles. It is rapidly installed (48 hours) and can meet our daily requirements for 1.2 million gallons per day over the beach. The system includes a single point moor that can be added within seven days when environmental conditions dictate a system capable of withstanding heavier weather conditions. Funds for a second system are requested in the amount of $14.0 million.

Increasing specialization of the U.S. flag merchant marine has reduced the utility of these commercial ships in handling and transporting military cargo, particularly that which cannot be stowed in containers. Consequently, the Navy's Ship Enhancement Features (SEF) program is structured to provide equipments and make modifications needed to adapt merchant ships to specific military missions.

As planned, the Enhancements fall into three categories. First are Productivity Enhancements which comprise the bulk of the modifications. These expand and adapt the capabilities of merchant ships to handle military cargo, providing increased flexibility for military support. Examples are SEA SHEDs, Flatracks and alongside refueling systems. Second are Survivability Enhancements which provide increased probability of survival in uncertain or threatening contingency circumstances. Examples include external communications and damage control enhancements. Third are the Operational Enhancements which will improve coordinated operations with fleet combatants and support units. These include external communications and lighting requirements for convoy operations.

The SEF program is being implemented over a period of several years. The program provides for installation of selected features on ships under the control of the Military Sealift Command and ships of the Ready Reserve Force. Equipment procurement and planning for SEF modifications on other U. S. flag ships will be completed, but installation not generally accomplished until required. A total of $59 million is included in this budget request for Sealift Enhancement Features.

In closing, I would like to emphasize that the strategic sealift program contained in this budget request has been closely coordinated with the Army and Marine Corps with the benefit of insight gained from last year's DoD Sealift Study and the experience of the recent JLOTS II testing.

Thank you for this opportunity to appear before this committee and describe the elements of strategic sealift that are so essential to mobility. I solicit your continued support and stand ready to answer any of your questions.

Senator **Cohen**. Gentlemen, I am going to yield to Senator Wilson, but I would just say that you have no problem, as far as I am concerned, in showing that the requests that you are making are necessary, important, and critical. However, there are some other people who come in here on strategic issues as well, and we are faced with not only a modernization here, but also in all of the strategic programs. Some of us feel we are trying to do too much too quickly with strategic and ignoring the needs that we have in conventional capability—not ignoring, but at least placing a lesser priority on it. And that is part of the crunch that is going to come.

We have not only the modernization program with the MX, the B-1, the stealth bomber, the D-5, and cruise missiles; we are now going to undertake a fairly significant SDI program. Frankly, there is great doubt as to whether we can fund all of these things without doing what we have done over the years, and that is cut back, I think regrettably, in the conventional capability and the needs that you gentlemen are representing today.

I think that as we go through this budget process, there are going to be reductions; and I would hope that they would not fall in the conventional area. I think that as far as I am concerned—I can only speak for myself—my own priorities are not looking as much to the stars as they are to the potholes. We cannot keep our eyes fixed on the stars without running the risk of stepping in some pretty big holes, and there has to be some kind of a healthy balance.

I am not sure we have the capacity to strike that balance, given the kind of domestic political pressures that seem to be building in the Congress right now.

Senator Wilson?

Senator **Wilson**. Thank you, Mr. Chairman.

C-17

I have a question for Dr. Cooper. It is my understanding that the Air Force has recently reached a decision to proceed to full-scale development of the C-17. Before you reached that decision, did you review the research and development costs of the C-17 program?

Dr. **Cooper**. Yes, we did. We reviewed them both in the Air Force, and then we reviewed them with the Secretary of Defense. And as General Russ had mentioned earlier, as a result of that review what was once a $4.3 billion R&D program is now a $3.9 billion R&D program. We gave it a very good scrub.

Senator **Wilson**. I apologize if you have already been over this——

Senator **Cohen**. We deleted the funding for the C-17, before you got here. [Laughter.]

Senator **Wilson**. Are we past shipyards, too?

Dr. **Cooper**. We appreciate the opportunity to get that back out on the record, Senator.

Senator **Wilson**. Just a final question, then. How did those research and development costs compare with other major R&D programs in the past?

Dr. **Cooper**. Let me ask General Russ to address that, because he has some comparisons for you.

General **Russ**. During our preparation for our DSARC, one of the questions we asked ourselves, as a matter of fact, is give us a feel for the R&D costs for the C–17 compared to a similar type of airplane.

COST COMPARISONS BETWEEN C–17 AND C–5

So the program office did an analysis of the C–17 versus the C–5, because it was the closest thing that we could use to make a valid comparison. Then based on an apples-to-apples comparison in the base year dollar, we found that the C–5 program would cost about $4.5 billion for R&D and the C–17 would cost about $3.3 billion for R&D in the comparable years.

That is about 27 percent less for the C–17. So we felt that was a valid comparison. Then we went back and said, let us give it the check of weight. As you all know, you tend to buy airplanes by the pound, and we did that comparison. In fact, the C–17 is around 25 to 30 percent less in weight. So we believe it is a valid figure.

That is a top-level analysis of it. It is not from a bottom-up scrub, but we had done three bottom-up scrubs in the costing of the C–17. I might mention that we are going to do another scrub on the C–17 as far as the production funds are concerned. We are satisfied now that the R&D funds are those that are needed. We still want to see if there is something else that we can do in the production funds to maybe enhance the program and lower the cost.

Senator **Wilson**. Thank you very much.

Dr. **Cooper**. Senator, I might make one other comment. I think given the time over which we are doing the R&D program, the funds are correct at this point. I think the only way to get a significant reduction in R&D costs would be to accelerate the program, and we would not advise you to do that. We think it is prudently paced, but it is now time driven. It is not money constrained.

Senator **Wilson**. All right. Thank you.

Thank you, Mr. Chairman.

Senator **Cohen**. General Russ, did I cut you off at any time during your oral presentation? Do you have anything else you would like to say?

General **Russ**. No, sir; you did not. I think I said everything I wanted to say, unless there is something else you wanted me to say.

Senator **Cohen**. Not at all. I think you have all made a great case for these programs. Part of the difficulty, as I mentioned just a moment ago, is it is much more enticing for people to look at exotic systems and think about chemical lasers, and particle beam weapons, than to appropriate dollars for bulldozers which we need in the Army, and for offloading equipment or LCACs. But you folks represent the people on the front line and you are, in all probability, going to be the ones that we turn to to minimize the potential for an all-out conflict, by putting out little brush fires that might erupt into something much bigger. And yet, the pressure is on, financially, to move in the other direction to the higher priced, more future-oriented systems because they are much more enticing and exotic to think about.

Dr. COOPER. If I might speak for just the Air Force, Senator, General Russ and I have responsibility for looking at both ends of the spectrum, and I do not believe that is the case today in the Air Force. We certainly are looking at some very high technology things, but I think for the first time in a long time when you look at this particular issue, the airlift issue, we have got a very good program that is well in balance with the rest of our priorities.

I will give you a little commercial: We just urge you to support it.

Senator COHEN. I do not disagree with that, Dr. Cooper. I am just saying that you are basing it on funding levels which are not going to be sustained. And when it comes to the crunch, the crunches always come on this side of that fence rather than the other. I do not know how to resolve that, other than by trying to continuously focus attention on what needs to be done in order to have an effective conventional deterrent, as well as an effective strategic deterrent.

It seems to me that the question is always asked, is it likely that we are going to see a major exchange between the United States and the Soviet Union on a nuclear basis? My answer is I doubt it. It is very unlikely, except by miscalculation or mistake. But the types of conflicts we have to try to anticipate are more like what we saw in Grenada, or what we are possibly more likely to see in the Persian Gulf. If there is an opportunity to topple a particularly unstable regime, and to disrupt the flow of supplies coming out, that is the kind of conflict that you folks are going to be asked to try and deter. And we have not put enough money in those forces until recent years, and there is not enough in there right now.

With that, I thank you all for coming. It has been very helpful, and we will see how it goes.

Dr. COOPER. Thank you, Senator.

[Questions for the hearing record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR J. JAMES EXON

SECURITY OF MARITIME PREPOSITIONED SHIPS

Senator EXON. Since we have quite a financial investment in these ships as well as a great strategic concern with them, what security is provided for these ships against threats at the terrorist and unconventional end of the warfare spectrum?

Captain KESTELOOT. The service contract requires a professional guard force for the brow of each ship. For additional security against terrorists, the ships have been provided small arms—pistols, shot guns, and rifles—and the crews are trained and periodically exercised in their use. In addition, the ships operating schedules provide for all to be underway at least one-third of the time, randomly over time so as to be unpredictable. Further, the operational commander obtains threat assessments of potential ports prior to scheduling visits, both to determine the correctness of the choice of port and to tailor resources, if necessary for security.

Senator EXON. In time of crisis or war will we have adequate naval and air protection for them as they move to their area of deembarkation and unload?

Captain KESTELOOT. The MPS concept of operations calls for delivery of the Marine Corps supplies in a preemptive manner or in reinforcement of already-landed personnel and equipment. In either case, the ships enter a secure environment and obviate the need for escort ships and aircraft over and above those needed for wartime convoys.

LHD PRIORITY

Senator EXON. A total of 10 Wasps are planned under the assumption that the defense budget will grow 8 percent annually. Since the rate of growth is highly unlikely, how will the Navy be able to build this number of WASPs and move ahead with other critical programs like the DDG-51 *Arleigh Burke*-class destroyers?

Admiral METCALF. Our force level objective for the LHD-1 Wasp class is 10 ships. The first was funded in fiscal year 1984 and is under construction at Ingalls Shipbuilding. The 5-year shipbuilding plan submitted with the fiscal year 1986 budget requests funding for 4 more of these ships including a 3-ship multiyear procurement beginning in fiscal year 1986. This multiyear plan will save over $800 million, the approximate cost of a DDG-51. Beginning with the fiscal year 1985 appropriation, the rate of real growth within SCN averages 3.8 per cent through fiscal year 1990. This is considered a reasonable and affordable rate which will be sustained and supported by the Congress. The key to obtaining our required force level is congressional approval of the LHD multiyear proposal in fiscal year 1986.

LHD PRIMARY MISSION

Senator EXON. In the past, when we built the *Blue Ridge*-class command ships, they were intended to serve as amphibious command ships. However, they now serve as fleet flagships rather than being dedicated to the amphibious role. With this piece of history in mind, is it not possible that the Wasps will end up primarily as sea control ships with Harrier jets and ASW helicopters—that is, a sort of "mini-carrier" rather than as dedicated amphibious ships?

Admiral METCALF. The *Blue Ridge*-class ships were built as amphibious command ships. They are presently being used as fleet flagships. They are, however, still carried on the rolls of amphibious command ships and are maintained with that capability. In the event of a contingency mission or general war the LCC class would revert to its primary amphibious role. The LHD is an amphibious assault ship, multi-purpose which has the capability to be converted to the sea control role. Its primary mission is the support of amphibious forces. It is the only ship currently under construction that will meet the helicopter lift shortfall that currently exists and which can replace the aging LPH class when they begin retiring in the late 1990's. The LHD class is the linchpin of the amphibious fleet required to meet the 1994 requirement to lift the assault echelons of a MAF and a MAB.

MANNING READY RESERVE FORCE (RRF) MERCHANT SHIPS

Senator EXON. The Navy and the Maritime Agency frequently exercise the Ready Reserve Force through no-notice testing to assess compliance with readiness criteria. How comprehensive is this testing with regard to overall ship readiness and what are the results of this testing to date?

Captain KESTELOOT. Activation of Ready Reserve Force ships are planned and scheduled for utilization in fleet or joint exercises for approximately 30 days duration. The sustained period of operations in a military exercise environment similar to that in which the ship would be employed in contingency or war provides a more accurate measure of readiness and reliability. Military cargo, unit equipment, outsized vehicles, supplies, and ammunition are loaded and unloaded using the ships cargo gear. All ship's systems are thoroughly tested and operated during this operation. Comprehensive reports of activaation and employment are reviewed by the Military Sealift Command and Chief of Naval Operations staff to identify problem areas and initiate appropriate corrective action when required. Exercise activations over the past several years have been considered successful in that the ships have achieved a ready for sea status within the assigned RRF criteria. Of the 10 ships activated since mid-1982 when this exercise employment concept was directed, only 1 ship has failed. Continued activations and exercise employments are deemed essential to ensure the readiness of this vital sealift asset.

Senator EXON. Where would the manpower to man the Ready Reserve Force come from and do we have adequate levels of manpower to meet the projected needs of the Force?

Captain KESTELOOT. A study just concluded for Navy by MARAD indicates that there is a sufficient number of personnel ashore in maritime related jobs who have the experience and skill required to man the ships of the Ready Reserve Force. MARAD estimates that a 2.5 to 1 ratio of seafarers in the work force to number of billets required is available and even with a decline of ships in the merchant marine, the ratio will still remain above 2.0 to 1. In addition, the Navy presently has a Merchant Marine Reserve (MMR), U.S. Naval Reserve Program that supports approximately 3,000 licensed officers who could become available in time of emergency.

MINE WARFARE AND AMPHIBIOUS ASSAULT

Senator **Exon**. General Godfrey, in your statement you expressed concern over the need for a shallow water mine countermeasures capability. Do we presently have such a capability and is it satisfactory for your requirements?

Will the addition of only 17 MSH coastal and 14 larger MCM ships, plus the projected helicopter minesweeping force, meet your concerns over shallow water mine countermeasures?

How significant is it that mine countermeasure assets will be primarily in the reserve rather than the active fleet?

General **Godfrey**. We do not, in the U.S. Navy inventory, have a satisfactory shallow water mine countermeasures capability at present. This serious deficiency, however, has been recognized and the CNO is pursuing a solution. A tentative Operational Requirement for a system capable of rapid shallow water mine clearance has been initiated, and research and development efforts are underway to meet this challenge. In the interim, the AMCM forces do have some capability in very shallow water. Tactics are being refined to maximize that capability. This will be a complementary effort to the system being developed.

Studies are presently underway, under the direction of the Director of Naval Warfare (OP-095), to determine the mine countermeasure force levels required in 1995 and beyond. The Marine Corps is an active participant in this study. One of the primary areas being addressed is mine countermeasures support for amphibious operations. Development of the rapid shallow water mine clearance system will be a primary adjunct to this effort. The form this system takes as it is developed and brought into the inventory will be a primary consideration in determining what force levels are required. Employment of the MCM ship is dependent on their being able to deploy to the assault area in a timely manner. The tasking for U.S. port clearance and their relatively slow transit speed capability would have to be considered before assigning them to support an amphibious operation. The MSH's are considered non-deployable and therefore are unlikely participants in an amphibious assault.

The very shallow water environment (around 30 feet or less) is difficult for either surface or air MCM platforms' operations, which is why the development of the rapid shallow water mine clearance system as well as innovative tactics is so critical. Recognition of our shortcomings is a first step, and we are proceeding from there.

Surface mine countermeasures assets have been primarily assigned to the Naval Reserve Force (NRF) for some time. This has been proven to be a non-issue. The Reserves have proven their capability and professionalism time and again. NRF minesweepers participate in nearly every major amphibious exercise today, and in the event of situations where an actual amphibious assault was ordered, we would expect them to be immediately available, for mine countermeasures operations, perhaps in somewhat fewer numbers. The helicopter minesweeping force is part of the active structure and deployable with only a few days notice.

FIRE SUPPORT FOR AMPHIBIOUS ASSAULTS

Senator **Exon**. General Godfrey, the primary advantage of the LCAC high speed air cushion vehicle and the planned OSPREY assault aircraft is to provide tactical flexibility to avoid defenses and ensure a quick build up of ashore combat support assets. Why do you feel that we need to develop new Naval Surface Fire Support weapons with ranges in excess of 100 kilometers?

General **Godfrey**. Despite the tactical mobility enhancements which dynamic new systems such as the LCAC and MV-22A Osprey will bring, we will continue to require naval surface fire support (NSFS) systems sufficient in caliber and range for a wide variety of scenarios. In many cases the threat is highly mobile and mechanized. Given Soviet tactics it is reasonable to suggest that in operations against Soviet or Soviet-model forces, the initial defense of the objective area may be light but the landing force would be subjected to prompt, violent counterattack by mechanized forces. This eventually calls for improvement in fire support accuracy (guided munitions) and lethality (ICM's and large caliber weapons). While evolving concepts for the amphibious assault include the insertion of forces in unopposed areas from over the horizon, contingencies may still require assaults of defended beaches and landing zones. Similarly, NSFS is essential for other types of amphibious operations, such as withdrawals, raids, and demonstrations. In any case, adequate range is required to support the helicopterborne assault (which may be 15 NM inland) and provide adequate counterbattery fire (20 NM beyond helicopter landing zones) against threat artillery systems. Depending on ship standoff (25 NM), this may generate a need for NSFS ranges of up to 60 NM (110KM).

BATTLESHIP REACTIVATION

Senator EXON. The Navy already has three battleships either in active inventory or about to shortly enter service. Why is a fourth needed and how can it be justified particularly as we face a growing manpower shortage? After all, each of the nine 16 inch guns requires 77 men to operate it—and this does not include other personnel to drive the ship, control its weapons or serve the support needs of the crew.

Admiral METCALF. Approximately 77 men are required to operate each of the three 16 inch turrets on the battleship, not each of the nine 16 inch guns. Battleship manpower requirements are less skill intensive than other navy ships; for example, the level of training and criticality of assigned ratings is less than that of a modern frigate. In addition, the battleship has the highest ratio of offensive striking power to manpower of any surface combatant. If manning caps were imposed, the Navy would draw down in less critical areas to ensure BB manning requirements are met.

The fourth battleship is required to ensure continued flexibility in meeting worldwide contingency tasking and augment over-extended carrier forces as demonstrated by USS *New Jersey's* extended deployment. Four battleships insure continuous battleship availability with acceptable deployment turnaround periods and sufficient time to carry out scheduled maintenance, modernization, and training.

STRATEGIC LIFT SHORTFALLS

Senator EXON. Which of our strategic lift shortfalls is the more troublesome—sealift or airlift—and why?

General RUSS. Strategic lift, both sealift and airlift, are part of a balanced mobility program which also includes prepositioning of equipment. This balanced program is essential to project and sustain forces and must be considered as an interdependent system in which each element is complementary and synergistic. A shortfall in any one element places an increased burden on the remaining two elements and further dilutes our force projection and sustainment capability during a global war. Each element of our mobility program has its strengths and weaknesses. Airlift is fast and flexible, but inherently has a limited capacity and is essentially airfield dependent. Sealift has a large capacity and some flexibility, but is comparatively slow and also seaport dependent. Prepositioning requires a marry-up of equipment and personnel, reduces overall long-range movement requirements, but at the expense of duplicate sets, limited flexibility, and vulnerability.

If looked at in the context of fast-paced, limited duration contingencies, as opposed to global war, airlift shortfalls are more troublesome. Airlift by its very nature provides the most rapid response and flexibility for our fighting forces. It has the ability to rapidly project combat units into potential battle areas. This rapid projection capability may defuse a potential threat of prevent confrontations from escalating into global crises thereby obviating the need for deployment of additional forces and their sustainment.

The airlift shortfall can be addressed in both a quantitative and qualitative manner. The Congressionally Mandated Mobility Study (CMMS) pointed out that we are woefully short of airlift to support a global war. Cognizant of fiscal realities, the CMMS identified a 20 million-ton-mile/day (MTM/D) capability as an achievable requirement to satisfy the airlift shortfall. Adding this to a 1986 projected capability baseline of 46 MTM/D, the minimum goal was set at 66 MTM/D. The CMMS also addressed the shortfall from a qualitative standpoint: at least half of the recommended 20 MTM/D should accommodate outsize cargo. Subsequently, introduction of the C-X (now the C-17) further addressed the qualitative aspects of the shortfall. With its capability to direct deliver (airland or airdrop) cargo, including outsized, to forward battle areas, the C-17 disperses the deployment of forces to a larger number of airfields. This alleviates or reduces major problems, such as congestion and survivability, normally experienced by airlift's dependence on airfields and provides more flexibility to airlift's rapid force projection capability.

Both airlift and sealift shortfalls are, of course, of concern to us. Together with prepositioning they represent the three key components of our strategic mobility triad. Our goal is a fiscally achievable balance between all three. From our point of view, however, solving shortfalls in sealift gives us the most problem. We not only have to deal with a less than ideal number of lift assets, but also, and perhaps more importantly, an ailing merchant marine industry. By having to take into account the falling number of ships, declining shipyard capacity, declining numbers of merchant mariners, and the higher costs associated with compensating for these factors;

our planning and programming for sealift is considerably more complicated and more expensive than it otherwise would be. I would point out, however, that Strategic Sealift labors under the burden of being one of the less glamorous service functions. Funding for this second leg of the mobility triad is inversely proportional to the amount of supplies it will be required to carry. Sealift will move more than 90 percent—95 percent of dry cargo and 99 percent of fuel—of combatant supplies and equipment into the area of conflict. It receives, on the other hand, only 3 percent military transport funds.

REAL GROWTH IN AIR FORCE PROCUREMENT

Senator Exon. General Russ, what is the real growth in the Air Force procurement accounts in this 5-year plan?

General Russ. The Air Force procurement accounts are projected in the fiscal year 1986 President's Budget to grow at about 5 percent per year in real terms through the next 5 years.

SPENDING CRUNCH

Senator Exon. If the actions of the Budget Committee yesterday are carried forward, we will have to cut $115 billion out of the DOD budget. Based on shares of the budget, the Air Force share would be $40 billion. Can we afford to launch the C-17 at this time in light of the likely spending crunch you will have to face?

Answer. The C-17 program is structured to provide appropriate airlift funding within other priorities of the government and within the Department of Defense. We took fiscal realities into consideration as we developed the mobility budget. If Air Force Total Obligation Authority is cut, we will re-examine all our programs and priorities.

ADDITIONAL C-5S

Senator Exon. The Lockheed Corporation has submitted a firm fixed price proposal to sell 24 more C-5s to the Air Force at an average cost of $120 million. In light of the severe budget problems, why is this an unacceptable alternative to meeting near term airlift needs?

Answer. The ongoing procurement of 50 C-5Bs represent a near-term "installment" against the intertheater airlift shortfall identified in the Congressionally Mandated Mobility Study (CMMS) published in 1981. However, these C-5Bs alone meet neither the entire intertheater shortfall, nor other shortfalls noted in the CMMS, which include intratheater tonnage (specifically, outsize cargo), and direct delivery of unit equipment and supplies to forward areas. Even if enough C-5s were procured to address the entire intertheater problem, the other equally important requirements would remain. To resolve this issue, the Air Force's Airlift Master Plan hinges on the C-17, an aircraft with intertheater range and the ability to operate into austere forward areas. The flexible C-17 will afford additional capacity necessary to solve the intertheater problem and, simultaneously, augment the C-130 intratheater fleet by offering, for the first time, outsize capacity (airdrop as well as airland) and a direct-delivery mode that puts fighting units on-line sooner by avoiding time-wasting transshipment requirements. Thus, by blending C-5B and C-17 procurement programs, the Airlift Master Plan solves as much of the near-term problem as possible while taking steps to quantitatively and qualitatively modernize the airlift fleet to meet the total airlift requirements of the future.

READY RESERVE FORCE AND SHIPBUILDING INDUSTRY

Senator Exon. Captain Kesteloot, you note in your statement that this has been a good year for the Ready Reserve Force. You note that last year we had 32 ships, this year we have 64, and are about to add 11 more. As you note in your statement, the health of the Ready Reserve Force is the silver lining to the dark cloud of the health of the commercial shipping industry.

During the past 5 years how many militarily useful ships have been constructed in U.S. shipyards?

Captain Kesteloot. Since 1 January 1980, the following militarily useful ships have been constructed in U.S. shipyards: Dry Cargo; 13 delivered, 8 under construction. Of the 13 delivered, 2 are currently laid up, 2 are in the Ready Reserve Force (RRF), ane 3 are being converted to Maritime Prepositioning Ships (MPS). The remaining 6 are all containerships. Of the 8 under construction, 5 are for the MPS programs. The remaining 3 are all containerships. Tankers; 16 delivered, 5 under construction with all of the 5 under construction being part of the Navy T-5 Tanker program. Integrated Tug barges; 10 delivered, none under construction. All of these are POL carriers, one of which has subsequently sunk.

Senator EXON. In the event of global war, can we meet the demands for military sealift as well as the demands of economic sealift?

Captain KESTELOOT. The 1984 DOD Sealift Study concluded that the amount of Strategic Sealift available to meet 1988 requirements was "marginally inadequate." As a result of that study and a later projection by the Maritime Administration regarding the size of the 1990 U.S. Flag Fleet, we have restructured the strategic sealift program to meet the total dry cargo lift requirement by 1991. With respect to tanker requirements and economic shipping requirements, the MARAD Economic Support Shipping Study and the DOD Petroleum Oil and Lubricants Study, both in progress, will assess whether or not we can meet our military as well as economic strategic shipping requirements.

Senator EXON. What is the average age of our Ready Reserve Force today? What will it be once the ships requested this year enter the RRF?

Captain KESTELOOT. The average age of the 75 ships currently in the Ready Reserve Force or those in the process of being layed up is 22.2 years. It is difficult to project the effect that ships entering the Ready Reserve Force in fiscal year 1986 will have with any degree of accuracy, however best estimates are that the average age at the end of fiscal year 1986 will be 19.9 years.

Senator EXON. You indicate in your statement that the projected Ready Reserve Force will consist of 100 dry cargo ships and 16 product tankers once the program is complete. What is the projected annual operating cost of this force once it is intact?

Captain KESTELOOT. Total annual cost to maintain a Ready Reserve Force sized at 116 ships is estimated to be approximately $90 million in fiscal year 1992. This cost does not include funding estimates of $23 million to conduct 12 annual no-notice activations nor $17 million to fund upgrade of ships for continued replacement of older ships. A total estimate of $130 million will be required.

OVER THE HORIZON ASSAULT

Senator EXON. General Godfrey, last week, Admiral Baggett gave testimony regarding over the horizon assault tactics and suggested that a new flexibility in these tactics which was theretofore unattainable, is the element of surprise regarding the location of the assault. Given the Soviet's intelligence gathering capabilities today, do you think that even with the increased mobility of our forces, any surprise is possible in areas relatively close to the Soviets' shores (i.e., Norway)?

General GODFREY. Amphibious force projection, in its principal form, can be characterized as a rapid forcible entry, followed by exploitation and, ultimately,, extraction. It is virtually a surprise offense, launched from the sea, capitalizing on unpredictability, and responding rapidly to fleeting opportunities to commit strength against weakness.

The strategic mobility afforded by amphibious assault shipping, complemented by tactical mobility enhancements such as LCAC and MV-22A, permits rapid maneuver from extended over-the-horizon haunch points at sea and allows the naval commander to gain "tactical surprise" at a point of his choosing. We do not expect to gain "strategic surprise" given the intelligence gathering capabilities of today.

The tactical surprise presented through effective employment of the amphibious force projection capability of the Navy/Marine Corps team calls to mind the thought's of Sun Tzu: "The enemy must not know where I intend to give battle. For if he does not know where I intend to give battle, he must prepare in a great many places—and when he prepares everywhere he will be weak everywhere."

NEED FOR JVX

Senator EXON. Now that the CH-46/SEAKNIGHT helicopters have been upgraded, why does the Marine Corps need the JVX, given the current capabilities of the CH-53E and the CH-46?

General GODFREY. The Marine Corps requires a replacement for its aging medium lift assets which are no longer capable of meeting the full range of Marine medium lift requirements. In order to meet the threat posed by highly mobile, mechanized forces, our own infantry forces have had to acquire more capable, heavier equipment. This more capable equipment, which provides the Commander with the required mobility and firepower to maneuver and counter this modern threat, exceeds the capability of our current medium lift force. The DON Amphibious Lift Study analyzed this requirement, and determined that a vertical lift force mix of MV-22A's (formerly JVX) and CH-53E's was the only viable aircraft force mix, sized to fit within the planned amphibious force ship mix, that could accomplish the ground force assault wave lift requirements.

Our plan is to transition our medium lift force, squadron for squadron, from the CH-46E to the MV-22A during the 1991 to 1999 timeframe. It is essential that this transition take place to enable us to meet the threat during the 1990's and beyond.

BATTLESHIP REACTIVATION

Senator **Exon**. Why do the Navy and the Marine Corps need the *Wisconsin* (BB 64) reactivated? I am told that these ships are manpower intensive, requiring over 75 men to fire each of the nine 16 inch gun barrels. In a period when we are worrying about a demographically shrinking pool of young men for the services, does it make sense to reactivate the fourth ship when you already have three?

Admiral **Metcalf**. Approximately 77 men required to operate each of the three 16 inch turrets on the battleship, not each of the nine 16 inch guns. Battleship manpower requirements are less skill intensive than other navy ships; for example, the level of training and criticality of assigned ratings is less than that of a modern frigate. In addition, the battleship has the highest ratio of offensive striking power to manpower of any surface combatant. If manning caps were imposed, the Navy would draw down in less critical areas to ensure BB manning requirements are met.

The fourth battleship is required to ensure continued flexibility in meeting worldwide contingency tasking and augment over-extended carrier forces as demonstrated by USS *New Jersey's* extended deployment. Four battleships insure continuous battleship availability with acceptable deployment turnaround periods and sufficient time to carry out scheduled maintenance, modernization, and training.

Senator **Exon**. How do we obtain spare parts for the original portions of the recommissioned battleships? Doesn't it make sense to keep one in a reserve mothballed status as a "spare parts bin," given that there are many parts on these ships that have not been made for decades?

Admiral **Metcalf**. In the BB 61 class all major equipments are supported by the original equipment manufacturers. At the piece part level (gaskets, springs, bearings, packing, etc.), there is a high degree of commonality with existing fleet equipments so parts are readily available. Problems faced by battleships in conducting normal repair and maintenance are not significantly different from those faced by other fleet units. There is no justification, from a supply standpoint, in keeping such a valuable naval asset as *Wisconsin* solely for use as a "spare parts bin."

LHD FORCE LEVELS

Senator **Exon**. Admiral, the Navy's long range shipbuilding plan calls for the production of 10 LHD-1 ships. These air capable ships displace about 40,000 tons and are about the size of the Soviets' KIEV class VSTOL carriers. We already have 5 similar LHA-1 class ships. Does this mean that in addition to having 15 large aircraft carriers, that we will have 15 KIEV class size VSTOL ships in our inventories, according to the Navy's plans?

Admiral **Metcalf**. The LHD is an amphibious assault ship, multi-purpose which has the capability to be converted to the sea control role. Its primary mission is the support of amphibious forces. It is the only ship currently under construction which will meet the helicopter lift shortfall that currently exists and which can replace the aging LPH class when they begin retiring in the late 1990s. The LHD class is the linchpin of the amphibious fleet required to meet the 1994 requirement to lift the assault echelons of a MAF and a MAB.

Senator **Cohen**. The hearing is adjourned.

[Whereupon, at 11:25 a.m., the hearing was adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

TUESDAY, MARCH 12, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVY RDT&E

The subcommittee met in open session, pursuant to notice, at 2:19 p.m., in room SR-232A, Russell Senate Office Building, Senator William S. Cohen (chairman) presiding.

Present: Senator Cohen.

Staff present: Gordon G. Riggle, Mark B. Robinson, and John J. Hamre, professional staff members; Russell C. Miller, research assistant; and Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Henry D. Sokolski, assistant to Senator Quayle; Allan Cameron, assistant to Senator Denton; William S. Lind, assistant to Senator Hart; Jeffrey B. Subko, assistant to Senator Exon; and Phillip P. Upschulte, assistant to Senator Glenn.

OPENING STATEMENT BY SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. Good afternoon.

Today we will hear testimony on Navy research, development, test and evaluation programs which come under the jurisdiction of the Sea Power and Force Projection Subcommittee.

On behalf of the subcommittee, I am happy to welcome our witnesses—Secretary Paisley, the Assistant Secretary of the Navy for Research, Engineering and Systems; Mr. Jerry Cann, the Principal Deputy Assistant Secretary for Research, Engineering and Systems in the Department of the Navy; Vice Adm. Albert J. Baciocco, Jr., the Director of Research, Development, Test and Evaluation in the Office of the Chief of Naval Operations; and Brig. Gen. Raymond Franklin, Deputy Chief of Staff for Research, Development and Systems for the Marine Corps.

I understand, Secretary Paisley, you are going to make the only formal presentation and we will then proceed to questions from the other members of the panel.

STATEMENT OF HON. MELVYN R. PAISLEY, ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, ENGINEERING AND SYSTEMS, DEPARTMENT OF THE NAVY, ACCOMPANIED BY GERALD CANN, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR RESEARCH, ENGINEERING AND SYSTEMS, DEPARTMENT OF THE NAVY; VICE ADM. ALBERT BACIOCCO, JR., U.S. NAVY, DIRECTOR, RESEARCH, DEVELOPMENT, TEST AND EVALUATION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS; AND BRIG. GEN. RAY M. FRANKLIN, U.S. MARINE CORPS, DEPUTY CHIEF OF STAFF FOR RESEARCH, DEVELOPMENT AND STUDIES, HEADQUARTERS, U.S. MARINE CORPS

Mr. PAISLEY. I will keep my opening remarks unclassified. I will lead you up to the point where we will show you a video tape that is classified. We can stop at that point and get any unclassified questions you might have and then at that point we can close it up.

Senator COHEN. Why don't we see if we can stay open as long as possible. We will defer the film until after we close the open session.

Mr. PAISLEY. You have done me the favor of introducing my associates here today. These three people help me put together the R&D budget for the Department of the Navy and also to manage it.

What I would like to do today is cover a number of initiatives that we have put into the Department in the last 4 years and talk about some of the programs that have come on line in the last 4 years and also some of the development that is going on that has taken place in the last 4 years and emphasize some of the late results that are coming out this year.

By way of management initiatives we have reduced the number of our programs from 526 to 400. That was not done with the intent of saving money. It was done with the intent of concentrating the money we have on a fewer number of programs. We have felt all along that the number of programs we had were too many.

We have been able to accomplish that. It was not easy. We now require all program managers to stay on their program 4 years. There is a waiver required from the Secretary of the Navy for the program manager to leave the program sooner than 4 years.

We are trying to keep the blue suit Navy personnel on programs longer and move civilians more than they have in the past. We find we have too many of our civilians in their jobs too long and I think that propagates a bureaucratic structure.

So, we are trying to move our civilians within the Navy structure more often. We have laid out a career path for our acquisition officers in the Navy. That will unfold over the next couple of months. It is a specific plan to allow a career path in acquisition that is attractive for military officers. This plan will allow them to move up to the rank of admiral and, therefore, keep the skills that we need and allow us to develop the training program that is better for acquisition officers.

That does not on the surface sound like a big thing, but that is a tremendous accomplishment when you understand the structure that goes into a normal military structure in the service.

We have fix priced many of our R&D programs where it makes sense to fix price. In the case of the F-14, the A-6, the T-45TS, three aircraft programs, we have been able to fix price them. We have saved over $700 million in those three programs and essentially have the warfighting capability that we set out to get when the programs were first laid out.

Competition really starts in R&D. If you are to get competition in production, you should try to lay the groundwork for that in the R&D program. A classic example of a program that I think will become a benchmark in DOD for doing competition is the V22A Osprey, formerly JVX.

On that program we have had two contractors from the start, working together on the development program and developing the data package jointly. We split the first year buy and from then it is competed between the two contractors. We are also doing that on our ATA aircraft.

I predict, as you look into the future, we in the Navy will not have a single contractor to build an airplane for us. When I look at programs we have in the Navy, where we have not done that, had two contractors, it appears to me the buys were large enough to support two separate contractors in competition and competition is what we are striving to continue to do.

We have taken many programs into competition. We are preparing to take the standard missile into competition and have a second source. For the Aegis system, we are going to take the integration and entire system into competition.

The rolling airframe missile will also be competed.

Senator COHEN. You won't get the Aegis in competition on the integrated system until 1989, though?

Mr. PAISLEY. Yes, in total, that is true. I think we have struggled to try to move the integration. The trick in doing that properly, by the way, is to get the integration contract on board as fast as possible. It is the most difficult part, too, by the way.

It is because of the nature of that system; the way it is built it requires a pretty good size facility to integrate it. Actually if you are the integrating contractor, you start to logically become the second source for the radar because it takes the same facility.

I am sure your point is why don't we see what we can do about accelerating it.

The Tomahawk system has been brought into competition. The vertical launcher, 2 years ago I don't know who told me we couldn't do it, but nobody told me we could do it. Everybody said we couldn't. We now have a second source for the vertical launcher second and it is working out nicely.

There is one program that people continually say we can't do and I see no reason why we can't do second source on is the 404 engine, and on and on.

Now, the question comes up, why don't you always compete? Why don't you always have a second source? Not too bad a question.

There are some cases when it might make sense to vary from this. Let me give you an example: Our SLAT Program, supersonic low altitude target vehicle. We awarded that contract under competition to a single contractor, fixed-price incentive R&D and firm fixed-price 3 years' production option with the data package to complete it.

I started thinking about it and said we have to push competition to the left as we are letting it slip too far to the right. I got the contractor in and learned that 70 percent of the contract is subcontracted by the prime contractor.

I said I would like you to subcontract under competition that 70 percent, go back into the fixed-price option you have given us, and give us credit for the improvements you get in that competition. We want that dollar amount off the contract.

Then I want you to guarantee you will follow the learning curve of the lowest price of the average of those contracts in the prime contract and then we won't compete the 30 percent prime, and he agreed to do it.

That is the thing that will force the effects of competition with having actual competition on the prime contractor and then you don't have to facilitize the front end for two contractors. It won't always work but in this case we had a good subcontractor mix.

We have done a lot in terms of trying to get more for the taxpayer's dollar in terms of R&D programs. We have brought many of our programs under focused management.

Our SSN-688, the SSN-21 and our SUBACS Program have been placed under one program manager and the reason we have done that is that there is an interrelationship between those programs and one has to take that into account when you are managing them.

Senator COHEN. Do you plan on second sourcing the SUBACS?

Mr. PAISLEY. We plan on second sourcing the SUBACS when it goes into the SSN-21. It is a two-phase program called the basic and the all-up program. The all-up system goes into the SSN-21 and we plan to have competition when that happens.

We put the F-14, the F-18, the AV-8B, A-6 under a single program management structure and through that will strive to get 80 percent commonality in the avionics. You can do that when you stick it under one program manager. That has been a struggle, but it is coming along nicely.

Let me talk a bit about what we are doing on more basic technology. We have some good work done on drag reduction polymers. We have done that basically for drag reduction in not only submarines but torpedoes.

We are working on fiber optics as a means of weight reduction. We are working on high strength steels and composites for weight reduction in both ships and aircraft. This is fundamental research.

What are we doing for the future? I personally think that all we are dealing with is people, so the future we have to worry about is the people that we have in the Department of the Navy, both military and civilian, that are going to do the things I am talking about.

We have graduate fellowship programs that we are expanding. We are also expanding the young investigator program. We have a program that the Congress approved and allowed us to proceed on almost 5 years ago at our laboratory in San Diego and the one at China Lake. There we have a new salary structure system. We have tried it now for 5 years and we just got authorization from the Congress to extend it for 10 years. I personally think it is a thing we should put throughout the Navy. I think it should be throughout DOD.

It is a method of salary structure that allows you to not only bring better people into the Department, but keep them. It motivates civilians. It is a very difficult thing to do under the current structure we have in civil service, and this system is working.

The data that is coming out looks very good. You ask, does it cost anything? It costs about 6 percent more in salary, however, if you look at true cost, we are saving money because people come in and stay in, people do not leave the Navy. We get better quality civilians. So, we are worrying about our future.

Let me now talk briefly about a few programs.

SSN-21

The SSN-21 is on schedule. The question comes up, and I have seen it from different questions that have been asked here in Congress, does it really address the threat?

The Secretary of the Navy sent a letter to Congress saying that he certified that this submarine would, in fact, meet the threat.

I was involved in the review that he made when he was assessing whether he felt it did, in fact, meet the threat. If you look at intelligence data, the performance on both quieting and sensors that are going into the submarine, I have to tell you that it is addressing the threat.

Senator COHEN. One of the arguments that is raised, and perhaps, Admiral Baciocco, you could answer this, why can't you make improvements to the 688 that would meet the projected threat by, let us say, the year 1995 or the year 2000 without going to a SSN-21?

Admiral BACIOCCO. We are making improvements to the 688, as you know, sir so that it is a credible submarine against the preponderance of the Soviet submarine force in the 1990s.

However, it will not fare as well against some of the newer classes of submarines that we are seeing and are projected to be produced by the other side. Its margin of superiority against them is significantly reduced, thus the SSN-21.

Senator COHEN. Are there any design issues that are still left to be resolved by the SSN-21?

Admiral BACIOCCO. Significant design issues, no, sir, I don't believe so. The design at this stage, as you know, is a reiterative process.

As we might go through some design questions in the classified portion of the testimony. But to my knowledge we have settled all of the issues.

Mr. PAISLEY. Maybe Jerry Cann can make a few comments. Your office talked about the way we are going to do two designs.

Mr. CANN. On the 688, to go back to that discussion, the fundamental problem of the 688 is that in order to achieve some of the quieting goals we are anticipating in the SSN-21, it requires more volume.

The 688 has run out of volume. You have to do some things which we will talk about in closed session. It cannot be done physically in the 688. We are going to stretch to improve the 688 to its logical limits.

With respect to the 21, I would say as a result of a review held in the last 30 days, that there are no significant outstanding design issues within the Department of the Navy on the design of that submarine.

Senator COHEN. Why have you chosen to go to the dual contract design scheme that Mr. Paisley just mentioned?

Mr. CANN. One of the important issues that goes with continuing with two contractors after the preliminary design goes into contract design is that you would like to do two things.

One, you would like to give the two contractors involved the opportunity to do innovative things with respect to the refinement of the design.

And, two, you would like to have the emphasis on competition. You will find that as they go through contract design separately using the basic premises that we have laid out in terms of performance, that they will find innovative ways to produce this ship.

Whereas, if you settle that discussion right now, you leave the single contractor to do what he wants to do in terms of contract design. You have very few options left to you at the time you go into detailed design and production.

Senator COHEN. Are there any additional price factors involved in maintaining that dual design scheme?

Mr. CANN. Yes.

Senator COHEN. What is the tradeoff?

Admittedly, you will get more innovation as long as you have continued competition, but the question is will you get a better price as well? Will you ultimately get price savings and what will be the upfront cost to maintain that kind of imaginative or creative competition?

Mr. CANN. If the upfront cost is a $40 million bill to maintain the contract design to the end; when you recognize that the lead ship is supposed to be a $1.6 billion ship and the following ships are $1 billion each and we have to build somewhere in the order of 30 of them, a $40 million investment against a $31 billion overall cost looks like a prudent investment.

Mr. PAISLEY. It seems to me, Mr. Chairman, it was not easy getting this done.

Senator COHEN. Getting what done?

Mr. PAISLEY. Getting two contractors. This is not the way we were going.

The Secretary of the Navy said we are going to do this. I wanted to be sure that we get this ship with the maximum capability with the minimum dollars. I don't want to give the only capability we have competing on this out too early. He said that the investment in competition is an investment that is bound to pay off.

I have to agree it is too early in this program to get one contractor. In fact, it was not clear to me when I first got involved we had any contract. I thought for a while the Navy was designing it.

I think we have three contractors. We have two contractors and the Navy which has a lot of capability to design it. We really have three parties playing together.

Senator COHEN. I can recall discussion last year in congressional testimony concerning whether you have considered enough outside suggestions. The critics felt the Navy was getting too closed and they wanted to get more recommendations from the private sector.

The general questions were, have we done enough and aren't you getting too narrow and isn't there an opportunity for outside private initiatives to improve this particular system?

I suppose you could go forever if you don't decide on a design. If you wait 5 years, you will have more recommendations that constantly change it. You have to make a decision at some point, based on what you reasonably anticipate will be the threat by the year 2000, and then build the ship.

I think what you are saying is there is no finality in the plans because we will continually seek improvements, as we sought improvement in the 688, and as we become aware of better and greater technologies. We will try to adapt those to the ship we think we will need in the future and extend that capability beyond the year 2000 as technology develops.

Mr. PAISLEY. We have a plan laid out. It includes two points. One is the cost and the other is the IOC.

We have to come from where we are now to that IOC while still incorporating some of the competitive aspects of it.

Senator COHEN. IOC is what? [Deleted.]

Mr. PAISLEY. It is 1989.

Admiral BACIOCCO. We are seeking authorization in 1989.

Senator COHEN. [Deleted.]

Mr. PAISLEY. That is right. Yet you have to follow that schedule. It allows you some time for competition.

My personal feeling is that the greatest benefit that will come out will be cost. It is pretty well understood by the contractor as well as the Navy what basic things are going to go in to accomplish what we want to accomplish.

I would like to see some innovative ways to get the cost out of the fundamental construction.

I was going through some programs. Another program that I touched on just slightly that I think is a tremendous accomplishment by the Department of the Navy over some number of years, actually more than 4, and that is the vertical launch capability that we are putting into submarines for the Tomahawk and the vertical launch capability we are putting on the surface ships.

You come in, not understanding the problem like I did not on that one, look at it carefully and I have come to the conclusion it is one of the major improvements going into the fleet. It does not sound like much on the surface, but when you think of the capability that can be put into a vertical launcher, you start making your capital ships with that system tremendously capable and that program is on schedule.

It is going in on the SSN-719, CG-52 and DDG-51. We are going to backfit it on the *Spruance* class. That program is moving along nicely. As I say, we have a second source on it.

Senator COHEN. Is VLS also planned for the SSN-21?

Mr. CANN. No, sir. The SSN-21 the fundamental decision was that we are better off having a larger torpedo room and tube launchers.

Mr. **Paisley**. If you see the submarine, you would see the problem. We tried to do that. You might recall when we put that in, we found going in on the 688 there was room for it. Remember that change that came in?

In fact, I think it may have come out of here. Designing from the ground up, we found that was not true.

Our last program is being deployed and a variant of the LAMPS the CV HELO.

LAMPS MK–III

Senator **Cohen**. Let's talk about LAMPS for a moment.

Last year we added some money for an antiship missile capability for the LAMPS MK–III, and the Navy pretty much selected the Penguin missile.

What has happened to the Penguin Program since 1 year ago? Has there been some slippage? The Norwegians are getting concerned that we are deferring it or delaying it. There are growing cost factors that will affect the program.

No. 1, why did you pick Penguin in the first place and, No. 2, where are we on this?

Mr. **Paisley**. One problem was that I went on a trip.

Senator **Cohen**. Were you in Norway at the time?

Mr. **Paisley**. The Secretary came back and he said while he was on the trip he had heard there was a program in trouble.

I said when I left town, don't change it when I am gone. I came back and there were some problems. Let me say this in the simplest terms I can.

If we don't do this program, if we don't put Penguin on LAMPS and if we don't do it in a cost-effective fashion and move on with it, I will personally come over and testify why not.

My plan is to do it. We have moved this program into Navair where it should have been. The intent now is to proceed on this program. We have some issues we have to resolve.

One issue is insensitive munitions. We can work that program. You can get innovative. I have asked them to look at all sorts of things.

Senator **Cohen**. Why do you intend to use insensitive material in the propellant for this missile?

Mr. **Paisley**. Some did not want to do it. Somebody did want to do it. Now we are going to make that problem go away.

There is a reason to worry about insensitive munitions; there is no doubt about that. But one always gets suspect and that is the reason the program is slipping when it is the first program it went on.

Senator **Cohen**. Could I hear from the admiral now?

Admiral **Baciocco**. In fairness to the CNO, I think it is accurate to say that the decision on Penguin came along after the CNO had drawn the line and stated that from now on all munitions are going to have insensitive munitions factored in.

His decision was made before the Penguin decision came along and thus the system started working Penguin with the insensitive munitions.

I agree with Mr. Paisley, we are going to get this job done.

Senator COHEN. When is the first production Penguin going to be operational?

Mr. PAISLEY. I don't think it is set. In fact, I know it is not set. In fact, we are going to review this program on the 22d of March. The vice chief and I are going to do it.

One of the things I want to do is plan when it is going to fold in in terms of the helicopter. We don't know right now.

Senator COHEN. Is the Navy now considering whether or not to put the Penguin on fixed-wing aircraft?

Mr. PAISLEY. There are several things I told them to look at when I came back and I had this problem with this program.

Admiral Baciocco came up with the idea and said we should look at this. That missile has been developed for launch from the F-16.

Senator COHEN. You have the Harpoon. Why do you want to switch now to the Penguin?

Mr. PAISLEY. It is a different munition, shorter range. The Harpoon's range is 75 miles. The Penguin's range is 18 miles.

There is the thought that you could maybe develop the capability for Penguin launch that operates in a certain mode. We are looking seriously at our hydrofoil fleet that operates out of Key West for whether you ought to have communications capability to put on board that will give you the capability to draw in land-based Tacair against any kind of threat.

That is the way the Norwegians use a patrol boat like that. It is a pretty effective way.

Let us take a look at it and does it make sense. The only argument I have heard for it is along those lines for a special mission like that.

Senator COHEN. I take it no contracts have been signed that would provide for the fitting of the Penguin on the LAMPS III helicopter at this point?

Mr. PAISLEY. No.

Senator COHEN. How soon after March 22 are you going to come back and tell us whether you can do it or you can't do it?

Mr. PAISLEY. I don't know any reason why we can't come back right after that. We may get some problems. If we get some problems after that meeting and he says we have to work on them, I will see that the committee is informed.

We will plan as soon as possible after that meeting to come back and tell you what we are doing.

CV HELICOPTER

Senator COHEN. I interrupted you. You were going to tell me about the CV helicopter.

Mr. PAISLEY. The CV helicopter is under contract presently. It is a LAMPS III helicopter.

Senator COHEN. Looking at your numbers, it seems to me you have picked a very unrealistic production rate. You picked 30 a year.

If you look at the LAMPS MK-III for this year, you have cut it to 18, because I have been trying to work out a deal where you can keep the III's and also keep the ones in production.

Thirty a year seems to me to be an unrealistically high production rate, particularly when you base it—this is not directed at you, Mel—but you are basing the annual growth rate on at least an 8-percent increase in real growth. That is not in the cards in the coming years.

If you don't get 30 a year and you figure something more realistic, what does that do to the unit production cost?

Mr. PAISLEY. Actually the quantity was selected on the LAMPS production rate.

Senator COHEN. Which was 24?

Mr. PAISLEY. Yes.

Senator COHEN. It was 24.

Mr. CANN. At one point in time when the LAMPS Program was under a lot of pressure, about 3 or 4 years ago, part of the deal we made to try to contain the LAMPS' cost was that we had a plan that was going to get us 40 LAMPS or 40 plus or minus LAMPS a year, we were going to buy out the entire LAMPS Program in 3 years.

Because of the vagaries of the budget process, that is now frittered away. We are now down to 18. The argument for that had to do with ship availability instead of having them out in the desert someplace.

The way the contract is set up, as I last looked at it, the LAMPS production and CV Inner-Zone helicopter production, all dovetailed together nicely to take advantage of this production rate.

If funds are not available, then it ought to be something different.

Senator COHEN. If the funds are not available, wouldn't the excessive tooling drive up your overhead cost?

Mr. CANN. Most of the tooling is in place.

Mr. PAISLEY. By the way, the tooling on it is $18 million. I am almost tempted to say that is not too large.

Senator COHEN. Do you have a firm cost for the R&D on this?

Mr. PAISLEY. The total R&D for the CV Inner Zone helo is about $54 million.

Mr. CANN. It is really an ECP to the other aircraft. It is not a new development.

Senator COHEN. OK, Mr. Paisley, you may proceed.

E-6A

Mr. PAISLEY. I mentioned the E-6A is under contract with IOC in 1990.

The F/A-18 and the AV-8B are coming into the fleet. We are putting in some night and low visibility enhancement into the AV-8B. That is being done by the British. They are developing a FLIR and under an agreement we have, we are going to split the cost of putting it into the AV-8B and then we are going to compete the FLIR for the F/A-18.

Senator COHEN. The British are doing the FLIR?

Mr. PAISLEY. They are doing the FLIR at no cost to us. They are going to develop the FLIR and we are going to share integration costs under an agreement we have.

It has turned out to be a pretty good deal, in my opinion.

TRIDENT II

The Trident II Program, you will see a film on that, has entered full-scale development. I really feel optimistic about our ability to meet the specification. There have been questions on this off and on.

I think history will show that we have never failed on a Navy strategic program to meet the specifications or exceed them. I have been familiar with strategic programs for over 20 years. I think we are going to meet the requirements. I see the program coming along nicely.

We could talk a little bit more about that when we get into the film because when you start getting into the specific accuracy, and so forth, we get into a classification problem.

You are going to see in this film the Aegis test program. The Aegis is now deployed. It is working out nicely. We had a very energetic test program where there was an engagement with multiple targets in a jamming environment and we shot down 10 out of 11. We could talk a little more about that.

One thing I might mention about Aegis, because I am sure the committee has an interest in the SDI, my personal feeling is when we start looking at what can the Navy bring to bear on this important issue, I think that the work that we have done on Aegis, on fire control and management of the terminal engagement has great application to SDI.

I think you will see the Navy playing a role in that regard at least from the perspective of concept formulation. We don't feel it is a mission for us, but we see some work we have done has some application.

You are going to see in the film two very interesting Tomahawk shots. One of them is a live warhead shot. You will see the test range and we will talk a bit about that. It is very impressive. So, I won't talk any more about that.

The Light Armored Vehicle is a unilateral Marine Corps program. It is being deployed with a 25-millimeter chain gun as the armament for the basic LAV-25. We have three candidate guns under development now for the LAV-Assault Gun variant.

General FRANKLIN. The assault gun variant of the LAV—will undergo competition for selection of its armament. We are developing the 75-millimeter hypervelocity gun as one candidate. We are also in joint development with the Air Force and Army on the hypervelocity missile. That is another option.

We also have a number of basic TOW's that have a countermeasure weakness so we are going to put a dual made SMAW type warhead on these missiles. That is a third option.

In 30 months we will have the capability of making the selection of one candidate weapon for the assault gun variant.

Mr. PAISLEY. Finally, you will see in this film a very interesting shot of the performance of our MK-50 warhead against the expected threat. That is a very attractive thing. I am anxious to show you that.

That winds up my comments. If we didn't pick up your questions, we may be able to handle some of them on an unclassified basis.

[The prepared statement of Mr. Paisley follows:]

PREPARED STATEMENT OF MELVYN R. PAISLEY, ASSISTANT SECRETARY OF THE NAVY (RESEARCH, ENGINEERING AND SYSTEMS)

INTRODUCTION

Mr. Chairman and members of the Committee, I am pleased to appear before this subcommittee again to present the Navy's FY 1986 Research and Development program and budget. With me today at the table are: Vice Admiral Albert J. Baciocco, Jr., United States Navy, Director, Research, Development, Test & Evaluation for the Chief of Naval Operations; Brigadier General Raymond M. Franklin, United States Marine Corp, Deputy Chief of Staff for Research, Development and Studies; and Mr. Gerald A. Cann, my principal deputy.

The President has emphasized the importance of the maritime power to this Nation. Research and development in support of the weapon acquisition process is the cornerstone of the modernization of our naval forces. The successful results of numerous research and development programs are now entering the fleet and improving our capabilities in all areas. Our new AEGIS ship combat system, TOMAHAWK Anti-Ship Missile, improved acoustic processors used in our ASW patrol aircraft, and the Vulcan Phalanx Close-In Weapons Systems are a few examples of those products. Our efforts are focused to stay ahead with acquisition programs such as the new logistics aircraft V-22A OSPREY, formerly called JVX; MK-48 ADCAP torpedo, the newest version of our submarine-launched torpedo; and the Advanced Tactical Aircraft (ATA). We are also supporting real growth in our research and exploratory development programs which are the seedbeds for break-throughs in advanced technology and become the revolutionary developments of the future. One area of development which I can point to with pride is in submarine technology. The R&D efforts of our Navy's newest, and to date most advanced nuclear submarine, the SSN-21 will prove to the world the value of a technically advanced submarine force. Surveillance and survivability are excellent examples of areas where important scientific phenomena can be harnessed to increase our future maritime strength.

For me personally, these past four years have been a unique challenge as I have attempted, with your support, to match the urgent needs of our Navy and Marine Corps with the capabilities of our industry and the resources provided for our national defense. I would like to give you an overview of our budget and program; to describe some of the management initiatives that are improving our operations; to highlight some of our major programs accomplishments of the past year; and to describe the capabilities we are developing for our various mission areas.

BUDGET OVERVIEW

My challenge in managing our Navy's R&D program is to use our nation's technological capabilities to meet the fleet's needs at the lowest possible cost and in a balanced, prudent way. Our request for $11.3 billion is approximately 10.8 percent of the Navy's Total Obligational Authority, a level we feel is necessary to support our Navy and Marine Corps with modern platforms and weapons. Our technological lead today is a product of the emphasis placed on R&D budgets and programs in the 60's and 70's. However, this advantage is being seriously challenged by our adversaries. Consequently, our future posture and security will depend heavily upon how we respond to this challenge.

Money is spent for three major activities: The Technology Base (Basic Research and Exploratory Development), Development (Advanced Development, Engineering Development and Operational Development), and Management Support. The Technology Base is 7.6% of the overall R&D program. It provides fundamental knowledge and new technologies that find a wide range of applications and generate concepts for new systems. The largest share of resources, 86.9% is devoted to the development of platforms and weapon systems. The remaining 5.5% is used to pay for management support in the operation and maintenance of R&D ships and aircraft, test ranges, laboratories, facilities, and other areas necessary to support our RDT&E programs.

I would now like to report on some of the major management initiatives we are pursuing to ensure that every R&D dollar is invested wisely and yields a high return.

MANAGEMENT OVERVIEW

We are continuing the management reforms initiated early in President Reagan's first term to reduce the time and costs of acquiring new systems. I am happy to report that we are realizing a greater payoff from these changes each year as the reforms are better understood at all levels, as practices fall into line with the new policies, and as the benefits become increasingly clear and generate additional support for the changes. The most important changes that are occurring, I believe, are the changes in attitudes that come with success: with the realization that acquisition program costs and risks can be substantially reduced by scrubbing requirements more thoroughly at the outset; by making industry a partner in this process; by introducing more competition in our acquisition programs; by exercising more discipline over the control of proposed changes; and by holding Program Managers and contractors responsible for the quality of the products they deliver.

You need only read the defense trade journals, newsletters, recent speeches of industrial leaders, and our latest System Acquisition Reports (SAR's), to know that our management reforms are taking hold, that they are bearing fruit, and that industry is responding positively to these reforms.

Let me tell you now more about our progress in reducing the total number of our development projects; about the steps we have taken to make program management a more attractive career path both for officers and civilians; about the emphasis being placed on introducing and maintaining additional competition in our acquisition programs; about some other changes in our contracting policies and practices; and about some of the highlights of the tests and evaluations of the past year.

Program Reduction. We continued to weed out lower priority programs, to be more selective in approving new starts, and to reduce the total number of developments being supported at any given time. To avoid program stretch-outs, instabilities, and cost growth, we will pursue only those projects that are both highly promising and can be fully and efficiently funded. Over the past four years we have worked hard to stop the proliferation of projects and to reduce the number of projects in our five year plans. I believe we have struck a sound balance between the number of development projects we are pursuing and our ability to carry them out efficiently and successfully. Only the strongest and highest priority programs have survived this intensive scrubbing. The following table indicates the results of this persistent management initiative:

Navy R&D programs fiscal year 1983–fiscal year 1986 (highly classified projects excluded)

Fiscal year:	*Number of projects*
1983	526
1984	496
1985	410
1986	400

Program Management Reform. Without experienced managers cost reduction initiatives cannot achieve their full potential. With this in mind, we have developed a new concept for a corps of Navy professionals dedicated to the management of R&D, acquisition, maintenance and readiness efforts. We want to ensure that such a career path is both an attractive one for our officers and one that will provide the education, experience, and incentives they need to become capable professionals in dealing with the business community. To enhance stability and to build experience, officers assigned as program managers will be required to serve longer tours of duty, and their promotion will be based upon their ability to develop effective weapon systems that meet requirements at the lowest cost possible. Flag level billets will be opened to those who demonstrate this skill. The career management of civilian acquisition management specialists are being similarly revised.

Program Management Proposals. The Navy has established a policy whereby any changes to a weapon system require a Program Management Proposal (PMP) review which ultimately is endorsed by the Secretary of the Navy. This policy has been in effect in our air warfare for some time and we have broadened its authority across all programs. These steps are being taken to ensure that programs are kept within guidelines and are only allowed expansion following SECNAV approval. The results of this initiative are already surfacing as we find fewer programs unnecessarily escalating in cost.

Competition. Competition has reduced and will continue to reduce our costs and result in other benefits as people are motivated to work harder and smarter. We seek true competition, not merely the appearance of competition and the award of a production monopoly. The Secretary of the Navy has established a policy of acquiring second sources for every program of appropriate size. I will back that policy by acquiring other sources as early in the life of each program as can be reasonably accomplished. There has been a tendency to think that competition could not be maintained in the complex arena of R&D beyond the early design phase. On the contrary, I continue to find that early and continuing emphasis on competition pays handsomely.

The cornerstone of acquisition theory is the effective application of competition in program life-cycle management. Competition can, and is being introduced into every phase of major systems development and acquisition with programs being subjected to competition from development to testing through full-scale production. Each phase is scrutinized for cost savings through tailored competition. In missile procurement alone, competition and multiple sourcing have saved millions. For example, we saved $10.5 million on one of the seven subassemblies (of which all are dual sourced) of the Sidewinder air-to-air missile in fiscal year 1984. Additionally, the Sidewinder Program has realized significant savings by requiring competition at the subcontractor level. In the HARPOON missile program four of the six subassemblies are dual sourced resulting in a $36 million dollar savings in fiscal year 1983. In 1984, we selected a second source for the VLS system, and initiated action to establish second sources for the SM-2, F-404 engine, Osprey, Aegis and the Rolling Airframe Missile. We also made the decision to compete the Phoenix. Since 1981, we have raised the number of competitively awarded programs from 25 to 37 percent of the total Navy procurement dollars. Competition is a powerful economic force. We have found it not only results in weapons at considerably less cost, but also gets them earlier and at the same time expands our industrial base. We are witnessing a burst of competitive innovation as more vendors vie for our business. There is room for much more competition, we need more competition, and we intend to push for it.

Contracting. We are also saving money by improving our contracting practices. We are increasing the use of fixed price contracts, reducing the number of contract changes, and requiring warranties in every possible case. Furthermore, it is good business sense to use common parts and subassemblies whenever possible. We are taking advantage of this practice in a number of programs, including the F-14, A-6, and AV-8B. Furthermore, we have just produced a new management plan to drive our attack on "gold plating". The Secretary of the Navy has appointed a "Streamlining Advocate General" to ensure this plan is implemented. As part of this effort, we have been able to cut our unnecessary military specifications by leaving it to industry to find the best way to meet our requirements. By specifying exactly what we need, and no more, and by resisting the tendency to make improvements during construction, we have been able to move away from cost-plus to firm fixed-price and fixed-price incentive contracts. There are three shining examples of our application of these techniques in the F-14 and A-6 upgrades and the T-45 Trainer (VTX-TS). The numbers tell the story: a $722 million saving.

Testing. Operational testing is a critical element of our decision making and the Congress has mandated important organizational changes at the OSD level to ensure that adequate attention and effort are devoted to the planning, conduct, analysis and objective appraisal of the results of operational tests of new systems before rate production is approved. Our independent testing agent, COMOPTEVFOR, continues to provide objective professional appraisals of the strengths and weaknesses of new naval systems. The Aegis system on the *Ticonderoga* class cruisers is an excellent example of a system that has been subjected to this rigorous and impartial testing. The Navy conducted both developmental and operational testing of the USS *Ticonderoga* (CG-47) and the AEGIS weapon system in April 1984. The purpose of this testing was to verify the correction of deficiencies identified in previous operational testing. The testing was more comprehensive and demanding than any undertaken to date. Multiple and simultaneous attacks by unmanned targets simulating some of the world's most sophisticated anti-ship missiles were conducted. Most attacks were in a wartime jamming and chaff environment. The USS *Ticonderoga* countered these attacks with live warhead missiles and a wartime firing doctrine. The AEGIS weapons system performed magnificently, destroying ten of the eleven targets during operational tests and five of five targets during development tests which immediately preceded the operational phase. These tests proved that our confidence in the AEGIS weapon system was completely justified.

The testing of Tomahawk, the conventional land attack missile (TLAM-C), is also progressing well. Recent firings have been spectacular successes. On 26 July 1984 the first end-to-end flight of a live warhead TLAM/C occurred. The missile was launched from USS *Houston* (SSN-713), flew 323 NM and destroyed a reinforced concrete building on San Clemente Island.

On 11 January 1985, a TLAM/C was successfully launched [deleted]. This DT/OT test flight was the fourth terminal dive test; [deleted].

Other test results that deserve special mention are the recent tests of our Phalanx Close In Weapon System (CIWS). A two phase CIWS test program was conducted to stress the system and identify performance deficiencies. In the first series of tests [deleted] missiles were fired against a remotely controlled CIWS system mounted on the former USS STODDARD. A target was towed [deleted] behind this platform. In the second phase of the tests [deleted] missiles were fired against the CIWS and the same target. [Deleted] a very impressive initial score. Much was also learned from these tests, further improvements in CIWS are planned, and additional tests will be conducted in 1986.

Tests of the MK-48 ADCAP torpedo also continued during the past year with notable successes. The most unusual tests were those conducted [deleted]. These tests produced much new and encouraging data on the passive and active acoustic homing capabilities of this torpedo. The preliminary results indicate that the ADCAP torpedo has significant capability [deleted].

Other major program accomplishments

Having outlined some of the highlights of recent test programs, I wish to say a few words about our stewardship and accomplishments in certain other high priority areas before moving on to our fiscal year 1986 RDT&E plans and budget requests.

The Trident II (D-5) weapon system entered full scale engineering development in fiscal year 1984. Development of Trident II includes the addition of a hard target kill capability through increase in throw weight and yield, and improved navigation, fire control and missile guidance. [Deleted.]

[Deleted], were flown on a DASO shot. The reentry bodies encountered high altitude (40 kf) ice clouds and heavy low altitude cloud deck. These adverse weather conditions are much more representative of expected target weather than other development flights. The [deleted] RBs performed extremely well, [deleted].

During 1984 the full scale engineering development contracts for Trident II missile have been definitized. As a result of these contract negotiations, the Navy has been able to reduce the estimated R&D costs for the weapon system by more than $500M or about 5% of the previous development estimate. The budget profile for the Trident II for fiscal year 1986 and beyond has taken this savings into account.

During the past year the nuclear land attack (TLAM/N) and the antishipping (TASM) versions of Tomahawk were successfully introduced into the Fleet. The initial operational capability (IOC) for TASM occurred in late November 1983 [deleted]. The surface ship launched TASM reached IOC [deleted] in June 1984. TLAM/N reached IOC on both submarine and surface ships in June 1984. Deployment of both TASM and TLAM/N is continuing. The conventional land attack (TLAM/C) is expected to become operational in fiscal year 1986. The first ships and submarines to be equipped with a vertical launch (VLS) Tomahawk capability are currently undergoing modification and overhaul and the IOC for the VLS Tomahawk is scheduled for fiscal year 1986 for surface ships and fiscal year 1987 for submarines.

With respect to the Navy's air programs, we entered into a firm fixed price contract for the F-14D and A-6 improvements. The improvements will include new engines, radar improvements, and avionics for both aircraft. We also restructured the T45TS HAWK TRAINER program full scale development from one that would have cost over $600 million down to a $450 million, (firm fixed price contract in fiscal year 1984 dollars), without significantly increasing the risk or giving up anything we really need.

In the JVX program, now designated the V-22A Osprey, we are about to enter full scale development. The aircraft configuration has been established in a highly successful preliminary design phase that included trade-off studies and was backed up by over 4,500 hours of wind tunnel and rotor dynamic tests.

In the air weapons area, we integrated Harm in the F/A-18; successfully completed OPEVAL of the Phoenix (AIM-54C); have taken steps to develop, competitively, a second source for the production of this missile; and have just begun production of Laser Maverick.

Similar progress has been made in the areas of Command, Control, Communications and Electronic Warfare. I will highlight here only a few of our recent accomplishments in EW. We conducted engineering tests on three different Off Board Deception Devices (ODDS), which indicate that we should be ready to proceed into TECHEVAL this year and OPEVAL late in fiscal year 1986. Tests of the advanced development model of the Integrated Cover and Deception System (ICADS) were also successfully completed and indicate that this program should be ready for transition into FSED this year. The Active Electronic Buoy, a device to be used [deleted] for fleet defense, has made this transition. The Chaff Buoy is farther along, undergoing TECH/OPEVAL. AIRBOC, an air deployed cartridge that generates a chaff cloud, successfully passed engineering testing and TECHEVAL. The NATO Sea Gnat [deleted] passed OPEVAL and was approved for rate production.

This is only a sampling of what we have done during the past year but I hope that it conveys some idea of both the intensity and success of our efforts. Now I will move on to the highlights of our program plans and initiatives for fiscal year 1986.

FISCAL YEAR 1986 PROGRAM HIGHLIGHTS TECHNOLOGY BASE

OVERVIEW

It has long been national policy to offset the numerical advantages of our adversaries by maintaining a technological and qualitative superiority in areas critical to our military posture. However, it has become very clear that our adversaries have substantially reduced our margin of technological superiority in many areas through their unwavering commitments to the support of their own scientists and engineers and to the rapid exploitation of technology obtained from the West. We must, therefore, support a real increase in our technology programs, and we must stem the rapid flow of our technology to the Soviets if we are to maintain a technological edge.

I am happy to report that there is no lack of promising and exciting ideas, investigations, and exploratory developments that are competing—indeed begging—for our attention and support. We have planned a broad base of research and exploratory developments for FY 1986 with a special concentration of effort in a dozen or so areas that are expected to lead to revolutionary developments. These include programs in advanced optics, such as the development of ultra low loss glass fibers; in Very High Speed Integrated Circuits (VHSIC) applications and Very Large Scale Integrated Circuit Architecture and related software; Artificial Intelligence and Expert Systems; energetic materials and solids; robotics; MM-wave interactions and technology; ship, submarine and torpedo hydrodynamics; torpedo warhead and propulsion technology; ASW sensor technology; the welding of naval alloys; oceanographic and arctic investigations; accelerated healing of wounds; and work to improve the performance of systems in higher sea states.

The United States remains a leader in technological innovation and accomplishment. While it is important to sustain technological growth in the future, it is also critical to accelerate our technology transition process. We must ensure that available technology moves rapidly to operational capability. Last year we began to expedite the transition process for one high payoff area; fiber optics technology. As a matter of policy we now include the application of fiber optics as an issue in the DNSARC process. We are currently working on a similar transition policy for VHSIC technology.

Previous congressional actions on our Tech Base program budget requests indicate that we need to do a much better job in explaining why these programs are so important. All of these investigations will not, of course, lead directly to new acquisition programs but the work will increase our knowledge and create entirely new options and opportunities with far-ranging implications. We need your support for this effort, and I will therefore briefly expand upon some of our Tech Base initiatives.

The Navy's research program will be expanded this year through a new initiative designed to enhance our basic science and engineering capabilities (P.E. 61103). This program is intended to benefit our in-house laboratories through fellowships, and a Young Investigator Program, as well as through increased laboratory support for multi-disciplinary research programs.

The Navy's Fellowship Program was established in 1982 as a means of increasing the supply of U.S. citizens trained to disciplines of science and engineering critical to the U.S. Navy. This program supports graduate study and research in nine major disciplines: Electrical Engineering; Mathematics; Computer Science; Naval Architecture and Ocean Engineering; Materials Science; Applied Physics; Aerospace/Mechanical Engineering; Life Sciences; and Oceanography. There are now 114 ONR Fellows. We encourage Fellows to spend one or more summers working in a Navy laboratory. This exposes the Fellows to vital naval research and provides the laboratories with an opportunity to recruit for the future. To encourage Fellows to take this opportunity, we increase the Fellow's stipend while at a lab.

In fiscal year 1986, the Navy will make about 20 awards for independent research through our outstanding Young Investigators Program. Young Investigators are tenure tracked professors who received their Ph.D. after 1 January 1980. The minimum award is $50,000 per year for three years. In addition, we match outside support which the Principal Investigator can attract. As a special incentive for becoming involved with naval activities, we triple support on topics of direct interest to Navy laboratories. The maximum award under the Young Investigators program is $240,000. Additional initiatives are planned for the support of graduate fellowships, young investigators, and research instrumentation in fiscal year 1986.

Our in-house laboratories apply science to warfare mission areas and transition technology to future weapons, sensors, and platforms. The deterioration of some Navy laboratory facilities over the years has prompted a vigorous program of renewal and upgrade. The construction of an Electronic Warfare facility at the Naval Research Laboratory and conversion of other aging laboratories buildings is planned.

I am particularly enthusiastic about the results of the Civilian Personnel demonstration project we have been testing since 1980 at two Navy laboratories in California. This project offers a simpler, more responsive approach to job classification and performance appraisal. The 98th Congress approved extension of this demonstration until 1990. The project eliminates civil service classification grades, and instead, places civilian employees under an innovative and flexible pay band system. Since 1980, civilian recruitment and employees and managers at the labs are more satisfied with this local control. We would like to see this exciting, successful Navy demonstration become the blueprint for federal-wide reforms in personnel management.

PROGRAM HIGHLIGHTS

Undersea Weapons and Sensors. Soviet submarine technology has provided markedly greater quieting, strengthened double hulls, higher speed, higher reserve buoyancy, and deeper operations. The largest share of our technology base program is aimed at surmounting this threat. Our 6.2 Exploratory Development program is accelerating the final phases of a [deleted] program, which is a cornerstone of the MK 50 torpedo P^{3}I program. This new warhead will provide the MK 50 with increased lethality, sufficient to deal with the newer, more formidable Soviet submarines. Further increases in weapons lethality will come from investigation into new concepts [deleted]. A joint program with the Department of Energy is being initiated to aid in producing the warhead technology of the next decade. Programs that will permit increased torpedo speed are being pursued vigorously [deleted].

In addition to these ASW weapons technology programs, we have focused our efforts on several sensor technology programs that will permit the U.S. to retain its acoustic advantage into the 1990's. [Deleted.] Similarly, we are beginning the development of [deleted] sensors which can be deployed rapidly to pick up and track patrolling submarines. [Deleted.]

Conventional Strike Weapons. We need smarter standoff weapons, improved lethality, and higher kill-per-sortie ratios to counter the growing range and sophistication of air defenses and the increasing quantity of targets. [Deleted.]

Oceanography Initiative. Knowledge of the ocean environment is critical to our naval tactical and strategic force employment. Recent technological breakthroughs in oceanography provide potential for an explosive growth of knowledge. We will take advantage of this opportunity by: (1) increasing oceanography educational opportunities within the Navy military and civilian research community, (2) improving data bases and equipment, e.g., by supporting the Navy Remote Ocean Sensing System (NROSS) and oceanographic research vessels, and (3) providing a catalyst for dynamic ocean modeling by means of the Institute for Naval Oceanography.

Last October, for the first time, an oceanographer payload specialist flew on the Space Shuttle. Since the inception of the shuttle program, the Navy has been providing oceanography training and briefings to the astronauts prior to each mission. These efforts have provided new insight into the complexity of the ocean, a complexity we have yet to fully comprehend and exploit.

The Secretary of the Navy has directed a major new thrust in oceanography to include: (1) the establishment of the Institute for Naval Oceanography, (2) expansion of graduate fellowships in ocean sciences, (3) increasing the number of academic chairs in oceanography, and (4) strengthening the ocean sciences research and exploratory development program. In 1986 we will begin new or expanded projects which include Arctic environmental monitoring and modeling, coastal processes, synthetic aperture radar remote sensing, shallow water acoustics, realtime prediction of ocean conditions, and investigations into the explosive development of storms at sea. These projects have been designed to support air, surface, and submarine operations in remote ocean regions, particularly where recent operations have highlighted deficiencies in data and environmental support.

Advanced Tactical Aircraft (ATA). Our ATA program will explore a number of areas: [Deleted]. We are evaluating related Air Force efforts to ensure the proper coordination of our initiatives in this area. [Deleted.]

AAW. Other Tech Base programs have the goal of increasing the fleet's ability to detect, locate, and destroy enemy stand-off jammers and bombers [deleted] early warning, and advanced guidance, fusing, warheads and propulsion are being developed for the outer air battle. In addition new technology to counter ship and submarine launched cruise missiles is being developed [deleted].

C^3I. We are developing command, control, communications and intelligence concepts, procedures, hardware and software to support timely decision-making and decision-execution. Our goals emphasize improved [deleted] communications for submarines and aircraft; more effective command support through artificial intelligence, information management and displays; highly reliable and accurate navigation equipment; and a greater computer resource capability. We have transitioned programs from the technology base into development in the following areas: [Deleted].

Again I wish to emphasize the importance we attach to this work and to solicit your support for it. Now let me move on to our development and acquisition programs.

STRATEGIC AND NONSTRATEGIC NUCLEAR FORCES

OVERVIEW

In the strategic and nonstrategic nuclear forces area we are pursuing developments and acquisitions to modernize and upgrade our Submarine Launched Ballistic Missile (SLBM) forces; to improve our strategic command, control, and communications capabilities; to develop TOMAHAWK cruise missiles capable of delivering conventional warheads; and to support the President's Strategic Defense Initiative.

PROGRAM HIGHLIGHTS

Strategic. Our Strategic SLBM program is a balance between missile and communication upgrades, which fulfill the President's requirement to modernize the strategic forces. We are budgeting [deleted] to carry out the modernization of the submarine ballistic missile system. Within this modernization program we are increasing the [deleted] capability of our missile. This will provide the SLBM with a hard target capability and increase the survivability, of the already highly survivable system, by increasing the total patrol area.

The Trident II weapon system entered full-scale engineering development during fiscal year 1984. Development encompasses the addition of an accurate hard target kill capability. This capability will be achieved by increasing the missile throw weight and warhead yield, and by improving [deleted] accuracies.

We are achieving throw weight capability [deleted]. We will also improve the system accuracy [deleted].

The design of the system is capable [deleted]. Our budget contains funding to preserve [deleted]. [Deleted] a large wedge for the advance development [deleted] in the outyears if it is required.

Strategic Communications. To provide for enduring command, control, and communications we are budgeting to upgrade the Extremely Low Frequency (ELF) transmitter in Wisconsin, as well as installing a second system in Michigan. In addition, we are improving TACAMO capability through communication system upgrades and utilizing a modified replacement airframe. We are developing Strategic Security and Enduring Communications (STRATSEC) systems and pursuing technology [deleted]. These initiatives will enhance both the capability and survivability of the communication system to match the increased capabilities of the SLBM forces.

To be able to take advantage of the expanded ocean area from which the Trident II missile can be launched, we are improving the TACAMO communications systems and developing alternative systems with long term survivability. Survivability considerations require operations [deleted]. It has been decided, therefore, to replace the existing C–130 airframe with the E–6A airframe which can cover 85 to 95 percent of the Pacific area from the West Coast. [Deleted] the E–6A should help extend communication survivability.

To extend the communications survivability [deleted] provided by ELF and TACAMO, we are participating in the Joint Service development of MILSTAR [deleted] MILSTAR will allow [deleted] submerged submarine communication for both strategic and tactical purposes. We are also developing [deleted] under the STRATSEC program. These efforts are expected to provide assured connectivity [deleted].

In addition to the basic research in the communications area, we are also funding technology base programs in stellar navigation, materials technology, and ocean optics.

Together, these programs will enhance the overall capability of the Fleet Ballistic Missile System.

Non Strategic Nuclear Forces. The addition of Tomahawk cruise missiles to the Fleet adds to our overall deterrence and the strike capability of the Fleet. During 1984 the nuclear land attack (TLAM/N) and antishipping (TASM) versions of Tomahawk were successfully introduced into the Fleet. Employment of Tomahawk increases our deterrence through the dispersal of launch platforms and enables us to engage surface targets at substantial stand-off ranges. The conventional warhead missile (TLAM-C) will be produced in two types: one with a unitary warhead [deleted] and the second with a submunition dispensing capability. We believe we will be able to introduce these TLAM-C versions into the Fleet in early 1986 and the fall of 1987, respectively.

We are proud to have the Tomahawk in the Fleet. We still need to improve this system. Therefore we are placing emphasis on the two conventional versions, over-the-horizon targeting and mission planning which is reflected in our budget request.

[Deleted.]

We have various initiatives, including the development of the relocatable, over-the-horizon radar, to improve our ability to provide our forces with timely and accurate over-the-horizon surveillance information. These improvements will enhance the over-the-horizon targeting capability for TASM. I will discuss these initiatives further under C^3I.

Information needed to guide a Tomahawk to a target on land is provided with the Theater Mission Planning System (TMPS). This system, the first of its type, determines the missile route and provides the digitized maps and target scenes. [Deleted.] Additionally, we are investigating techniques to simplify attack planning by providing a system to assist shipboard personnel in this task.

Strategic Defense Initiative (SDI). The Navy fully supports the President's Strategic Defense Initiative. We are providing support, through our laboratories, in basic technology and providing management expertise in program management for the Tri-Service National Laser Test Range at White Sands. We continue to examine additional areas, such as battle management, where our expertise can be used to provide guidance in one of the more complex parts of the defense problem. For example, the Navy's experience with AEGIS capable ships indicates that these ships have an extraordinary capability against missiles that might be launched from ships, submarines, aircraft, or from land.

SURFACE PROGRAMS

OVERVIEW

In the past year we have continued to emphasize improvements in our offensive stand-off capability and have also made impressive progress in our efforts to improve battle group air defense against anti-ship missiles. I have already mentioned the successful follow-on operational testing of the USS *Ticonderoga* (CG-47) AEGIS weapon system, and the successes achieved with the PHALANX Close-in Weapon System (CIWS) against two of the world's best known anti-ship missiles. Similar improvements have been made in the reliability and maintainability of our shipboard combat systems and propulsion plants. Increased integration of a variety of sensors and weapons has significantly reduced our weapon reaction time and improved our ability to put weapons on target in a timely and accurate manner. 1986 will see the fleet introduction of a number of combat capability improvements such as vertical launchers, new threat upgrade, and NTDS enhancements, which have been in development and are now ready.

In the sections that follow I will discuss additional surface programs that will increase our ability to attack enemy platforms at long range before they can launch their missiles, add depth to our defenses, and prevent repeated raids. I will also update you on the DDG-51 program; the Rolling Airframe Missile (RAM); and on other surface programs.

PROGRAM HIGHLIGHTS

AAAM/ASAM. [Deleted.] Concept definitions with competitive industry participation has begun on Advanced Surface-to-Air and Air-to-Air Missile Systems (ASAM/AAAM) that will allow the most promising option or options to begin development next year. Although the requirements for these two systems indicate that a common weapon may not be optimal, we are striving to save money with the maximum commonality possible in the subsystems of these missiles. We will evaluate at least one option that will develop a single missile for both surface and air launched missions.

Standard Missile Improvements and New Threat Upgrades (NTU). The Standard Missile 2 Block II (Medium Range) entered production during the past year. This missile, fired by our *Ticonderoga* class cruisers, provides a dramatic improvement [deleted] over the older STANDARD Missile 2 Block I (Medium Range) missile it replaces. The employment of this Block II (Medium Range) missile, the Block II (Extended Range) missile on our *Terrier* cruisers, and New Threat Upgrade installations that begin in 1986 on our *Terrier* and *Tartar* cruisers and destroyers will provide continuing AAW improvement to our battle groups.

The nuclear Standard missile, SM-2(N), could be a significant element of our Navy's defense-in-depth strategy and air defense capability for the 1990's. We have recently completed an extensive analysis of SM-2(N) employment strategy and have restructured the SM-2(N) program to focus in Aegis ships. This restructuring is reflected in the fiscal year 1986 budget submission, but also requires continued 1985 funding support. I solicit your early attention, to the Navy's reprogramming request for 1985.

Efforts continue to bring the Navy's Battle Group Anti-Air Warfare Coordination (BGAAWC) program to completion. When mature, this program will improve fleet AAW by providing better coordination of battle group sensors and weapon systems. One element of this system, the automatic grid-lock system, went into production last year.

DDG-51. Our efforts to build a modern surface fleet capable of conducting offensive operations continued with the, DDG-51 program. This is a highly survivable ship with impressive and flexible warfighting capabilities. Her cruise missile capability will add a new dimension to the Navy's surface warfare force.

The first unit of the Rankine Cycle Energy Recovery System (RACER) has been delivered to the Naval Ship Systems Engineering Station, Philadelphia, and the contractor has begun testing it. After thorough and satisfactory testing, we intend to forward fit RACER in the DDG-51 class combatants during construction. DDG-51 combatants too advanced in construction to permit forward fitting without major construction perturbation will be capable of being backfitted with Racer without major design modifications.

Point Defense. The Navy continues to improve its anti-ship missile system capability. Efforts are underway to accelerate introduction of the Block I version of the Phalanx system into the fleet. This will significantly enhance the ability of surface ships to defend themselves against anti-ship missiles. Flight testing of the Rolling Airframe Missile (RAM) prototype round continues. This system, which is being developed in cooperation with Germany and Denmark, will provide the fleet with a high fire power defensive missile system that will complement the Phalanx system. Operational testing of RAM will begin in early 1985 with full operational evaluation beginning in September of this year. A well structured program has been initiated this year to exploit existing fuze and warhead technologies to defeat the projected improved threats of the late 1980's and 1990's. The near term effort will enable various shipboard surface-to-air missile systems to engage [deleted] anti-ship missile threats more successfully. In the long term, promising technologies will be developed to counter the threats of the late 1990's [deleted].

CG-47 Upgrade. Development of the SPY-1B radar continues. This system will provide AEGIS ships with an improved capability to engage small radar cross-section targets in heavy jamming. Extensive developmental testing was conducted at the Combat System Engineering Development Site (CSEDS) in Moorestown, New Jersey. This testing validated the Navy's performance expectations for the SPY-1B. Operational testing of the SPY-1B will begin in March this year at CSEDS.

Naval Gunfire. We have recently initiated a study of the requirements and options for improving our gunfire support capability. The study report will be completed this March. We moved forward last year to improve the battleship's 16-inch gun system and ammunition effectiveness. We have completed several quick reaction improvements, determined other ammunition improvements that can be completed in the near term, and established a new project that will start in fiscal year 1986 and will provide continuing improvements as the technology advances. As an example of a near term improvement, we are accelerating work on an improved new round, filled with modern Army submunitions that will be in the fleet in 1987. Our goal is to maximize lethality in the near term while developing the concepts and technology which will sustain battleship warfighting capability into the 1990's.

In fiscal year 1986, we will begin full scale production of the semi-active laser guided projectile to be fired from modern, light-weight five-inch guns. Together with the associated laser fire control system, Seafire, this projectile will enhance our capability to provide very accurate naval gunfire during amphibious assault operations and against enemy ships. The Seafire system is now under contract for full-scale engineering development and will begin operational testing in fiscal year 1987. We are presently reviewing plans to compete full production of Seafire and anticipate first delivery of production systems to DDG-51 class ships in 1989.

Low Observables. [Deleted.] We have initiated several developments to counter that capability. A shipboard infrared search and target designation system, designated SAR-8, is now in full scale engineering development under a cooperative development agreement with Canada. This system will enable us to detect the infrared signatures of aircraft and missiles and rapidly designate these threats to shipboard weapons systems for engagement. In addition to its capability against low observable targets, the SAR-8 will improve our AAW capability in a jamming environment and will provide a passive surveillance capability while operating in a radar silent condition. We expect Initial Operational Capability [deleted].

Another system, which is intended to improve our capability against low observable targets, is the Advanced Tactical Radar System. This radar will integrate a weapon support subsystem with a surveillance subsystem to provide an affordable surveillance and weapon engagement system for the next generation of small to mid-size combatants.

Air Programs

OVERVIEW

Extraordinary attention and effort have been devoted to our RDT&E plans and acquisition programs because of the magnitude of the challenges confronting us, and because of the necessity of attaining our goals as efficiently and economically as possible. It is perhaps no overstatement to say that we have applied the new acquisition management policies more intensively, vigorously, and successfully in the Air R&D area than any other to date. As each major program has come up for review and milestone decisions, we have taken great pains to increase competition; to reduce acquisition costs and risks by tailoring and streamlining requirements and specifications; to promote commonality among aircraft and weapon systems; to press for more fixed price developments to prevent cost growth; to discipline proposed changes in these contracts; and to establish second production sources for weapon systems or subsystems.

In fiscal year 1984 and fiscal year 1985 a major thrust of the RDT&E air programs was to achieve commonality objectives which lead to cost avoidance. A-6F and F-14D projects are good examples of related accomplishments. The avionic improvements to both aircraft share over eighty percent subsystems and software commonality is also being pursued in the AV-8B and F/A-18 night attack programs where the requirements for the Forward Looking Infrared (FLIR) systems and night vision support equipment for both aircraft are the same, thereby saving on acquisition and support costs.

With respect to aerial targets, last year the Navy very successfully qualified the interim supersonic low altitude target (VANDAL-Extended Range) at two launch sites (PMTC and Wallops Island). In addition, we successfully competed and awarded a fixed price R&D contract, which includes firm fixed price production options, for the future supersonic low altitude target (AQM-127A). This target will be available in fiscal year 1990 for R&D testing.

We continue to reap the benefits of our efforts to streamline system requirements in missile and aircraft systems. These actions are best seen by the record the Secretary of the Navy has established in the continued decrease in the fly away unit costs of our tactical aircraft and missile system during the last four years. With excellent support from Congress, the DON has also placed in operational status the first Marine [deleted] Squadron [deleted]. This system can be used [deleted]. We are using this system to develop the operational requirements for our follow-on [deleted] systems.

Having previously described some of our recent accomplishments in this area, I would now like to say a few more words about our fiscal year 1986 proposed F-14, V-22 Osprey (JVX), A-6 and ATA aircraft developments; unmanned air vehicles; the T-45 Training Systems; our missile programs; Aerial targets; and NACES.

PROGRAM HIGHLIGHTS

F-14 Upgrade. We have a firm fixed price contract for the F-14 upgrade, which will include new engines, radar improvements, infrared search and track, and avionics architecture changes, which insure commonality of operations and support with fleet aircraft and ships employing JTIDS, ASPJ, ALR-67, and AMRAAM. This upgrade will increase the F-14's performance against the projected threat into the twenty-first century.

V-22A (JVX). As previously mentioned, we are proceeding into FSD with the V-22A OSPREY. This program exploits a true technological breakthrough in aircraft design. The V-22A will combine the hover capabilities of a conventional helicopter with a turbo prop's speed, range and payload. The aircraft will not only be capable of vertical take-off and landing but will have a 250 knot cruise speed and global self-deployable range. Our V-22A program will deliver over 900 of these tilt-rotor transports to the Services, meeting Marine Corps assault, Air Force special operations, Navy combat SAR and Army combat support mission requirements.

A-6E Improvements. The present A-6E aircraft are not adequate to meet the Navy's all-weather requirements in the 1990's. We need to improve their survivability, reliability and maintainability for sustained warfighting capability, while reducing their life cycle cost. We also must address inventory shortfalls.

We have an A-6 improvement program in full-scale development under a fixed price RDT&E contract, which addresses these needs. This contract is being executed in conjunction with a similar contract for the F-14D development on a program cost sharing basis. The A-6F will have improved thrust engines, common to the F/A-18, digital avionics with maximum commonality to the F/A-18, F-14D and AV-8B, and a new high resolution radar for standoff targeting.

The program includes integration of various air-to-surface standoff weapons, defensive electronics countermeasures, Halon inert fuel system in the event of fire or battle damage, improved radios for increased reliability and maintainability, and the secure Have Quick capability.

With regard to A-6 inventory shortfalls, we plan for a A-6F procurement in fiscal year 1988-93, with first delivery commencing in 1990. To meet the requirements for improved survivability and enhanced reliability and maintainability in the 1990's, a number of A-6E's built prior to fiscal year 1988 will require modification to the full A-6F configuration and we are now in the process of specifying and costing this effort.

Advanced Tactical Aircraft (ATA). We are planning to replace the A-6 in the late 1990's. The replacement aircraft, designated the Advanced Tactical Aircraft, will also contribute to fleet air defense and electronic warfare operations, greatly increasing our warfighting flexibility. Emphasis will be placed on high payoff technology and specific ATA concept studies by major aerospace firms. We are staffing a Memorandum of Understanding with the Air Force to ensure maximum commonality with the Air Force's Advanced Tactical Fighter and to share the burden of developing advanced integrated avionics and weapons systems.

Unmanned Air Vehicles. [Deleted.]

T-45TS. We are in the final stages of contract definitization for full scale engineering development on our T-45 Training System. This contract calls for the development of a integrated undergraduate jet flight training system consisting of the T-45 aircraft, flight simulator, academic courseware, computer aided instruction, and a training integration system.

Harm/Low Cost Seeker/Arm Programs. The Harm weapon system is in its third year of production. second year of fleet use with the A-7 aircraft, and first year introduction on the F/A-18. The fleet is impressed with its performance, reliability, and maintainability. We are integrating HARM capability in the A-6, along with other standoff weapons. Due to the excellent efforts of the Navy Material Command and commitment by Texas Instruments, the total Harm program cost projection is now 30% lower than our projections of two years ago. We are aggressively developing a reduced cost seeker for HARM to continue to gain benefits of competition and increase the Anti-Radiation Missile industrial base. This seeker will also have application in other weapons.

In concert with other services, we have prepared a comprehensive Anti-Radiation Missile "Roadmap" to chart our course for future ARM requirements, and to ensure joint programs where there are sufficient common requirements and cost effective solutions.

Aerial Targets. The development of high performance targets for our test program continues at an accelerated pace to provide the most complete weapon systems testing possible. The Vandal (ER) program, a supersonic sea-skimmer, is now operational on both coasts and came in on time and on cost. The contract for the BQM-126A, low cost follow-on to the BQM-34, was competitively awarded in September 1984. The Supersonic Low Altitude Target (YBQM-127A) contract was also awarded in September 1984.

NACES (Navy Aircrew Common Ejection Seat). The ejection seat is the primary means of aircrew escape from disabled aircraft. Current tactical aircraft ejection seats are procured sole source on an annual basis with each type aircraft having a different model ejection seat. In fiscal year 1984 we initiated a program to acquire a common seat that is procured competitively on an annual basis. Commonality will provide benefits in safety, training and maintenance costs and lower cost due to competition. In addition, there will be greater competition in the area of spares and consumable parts for this system. Our program to develop a Navy Aircrew Common Ejection Seat (NACES) for use in the F/A-18, TF-18, T-45, F-14D and improved A-6E aircraft is progressing well since its start in fiscal year 1984. We are evaluating several responses to our Request for Proposals on a single seat design. We will use a leader follower concept to co-produce the Navy Aircrew Common Ejection Seat and further reduce its cost.

ASW PROGRAMS

OVERVIEW

For the past 20 years our ASW investment strategy and operational tactics have been structured to maintain and exploit the acoustic advantage we enjoyed over Soviet submarines. Our surveillance systems, sonar systems, sonobuoys, towed arrays, submarine silencing, ASW weapons, operational tactics, indeed the entire spectrum of ASW efforts have been based on our acoustic advantage. Basically, we took advantage of the fact that Soviet submarines were generally much more noisy than ours [deleted]. As the Soviets reduced the radiated noise from their submarines we made the necessary technical improvements to maintain our advantage.

In our efforts to maintain an acoustical advantage, we have been fortunate [deleted]. We were able to predict rather accurately what their radiated noise levels would be and adjust our ASW efforts accordingly.

In the last year it has become obvious that the Soviets have improved the quieting of their newer submarine classes [deleted].

First, it requires that we silence, to the fullest extent possible, our ASW ships and submarines, especially SSN 21.

Second, we must complement our acoustic silencing efforts with development of new surveillance systems, sensors, and tactics. We will face a mixture of old and new Soviet submarines through the year 2000. Therefore we need to maintain a full range of proven acoustical capabilities against the current threat while developing effective counters to the projected quieter threat. The solution to the future threat is many faceted and requires initiatives [deleted].

Third, we must be prepared to provide increased close-in ASW defense for our surface forces and battlegroups while maintaining full strength outer zone defenses. As Soviet submarines become quieter [deleted]. The CV inner-zone and LAMPS MK III helicopters, quick reaction vertical launch ASROC, and the Surface Ship Torpedo Defense System form the nucleus of our increasingly important inner zone ASW defense.

Finally, we must ensure that our torpedoes are fully capable against the emerging threat. In the final outcome, the success of our billions of dollars worth of ASW platforms and systems will be determined by the effectiveness of our torpedoes. The MK-50 Advanced Lighweight Torpedo and the MK-48 ADCAP must be lethal, quiet, fast, smart, deep-diving, and capable of being employed quickly and simply.

In summary, the change in the Soviet submarine threat due to their rapid improvement in quieting is the major influence on the ASW investment strategy presented in the following sections.

PROGRAM HIGHLIGHTS

Environmental Research and Surveillance. Environmental acoustic research and development programs are focusing on accurately modeling and predicting active and passive sonar system performance. This will provide tactical units the acoustic information needed to determine optimum detection and counter-detection envelopes. In the Arctic, where the Navy has the responsibility for coordinating all acoustic efforts, we are collecting and evaluating environmental acoustic data [deleted]. We will also be conducting the first sustained Arctic ASW exercise this year.

In ASW surveillance, we are currently completing the SOSUS backfit program. To meet the quieted threat [deleted] Fixed Distributed Systems, which will exploit the improved data transmission characteristics of [deleted] technology, will complete development and enter the fleet [deleted] to existing fixed arrays and the Surveillance Towed Array Sensor System (SURTASS) are being developed to meet the requirements of the twenty-first century. A demonstration of an active sonar surveillance system is planned [deleted]. We are also continuing research in shallow water ASW acoustics [deleted].

Surface ASW Weapons and Torpedo Defense. Surface ship ASW improvements includes hull-mounted sonar upgrades that will begin to enter the fleet [deleted] with the installation of our first production AN/SQS-53B. This system is scheduled for installation on all DD-963, CG-47 and DDG-51 class combatants. The follow-on SQS-53C Sonar will be installed in new production DDG-51's when the sonar completes development [deleted]. These sonar improvements, in conjunction with other SQQ-89 ASW system components like the MK-19 Tactical Towed Array Sonar (TACTAS) and the LAMPS III helicopter, will substantially improve the detection and prosecution capabilities of our surface ASW forces.

Surface ASW weapons improvements include the MK-50 Advanced Lightweight Torpedo, which entered Full Scale Engineering Development in fiscal year 1984, and a P3I program to address future warhead requirements. The Vertical Launch ASROC program, which will replace our aging ASROC box launchers and increase the range of the weapon, has completed advanced development and will be entering engineering development this year. We are well into a two year program to establish future mine and mine delivery system requirements and to assess available foreign and domestic technologies for mine warfare applications. This program will lead to an operational and technical baseline for initiating mine warfare developments [deleted].

We have also increased emphasis on protecting our combatant, logistics, and amphibious force ships from submarine launched torpedo attack. The Surface Ship Torpedo Defense program has been accelerated to provide [deleted] torpedo defense for our high value aircraft carriers [deleted].

Air ASW Programs. We are making significant strides in upgrading our Airborne ASW capability. The latest version of our long range patrol aircraft, the P-3 update III, is now entering the fleet with improved acoustic receivers, processing and displays. The P-3 update IV is entering development. It will incorporate the UYS-2 Enhanced Modular Signal Processor, which will be able to process the outputs from large numbers of advanced sensors. The P-3 update IV will also include an upgraded non-acoustic sensor suite, and a data bus architecture to facilitate data management and future growth.

A weapon system improvement program for the S-3B, our fixed wing carrier based ASW aircraft, is undergoing initial operational evaluation, with production approval scheduled to occur this year. The S-3B incorporates improved signal processing, enhanced ESM/ECM systems, an Inverse Synthetic Aperture Radar and Harpoon capability.

We have deployed our first three LAMPS III helicopter systems which, in concert with its host ship and the SQR-19 tactical towed array, provides a significant improvement to carrier battle group mid-zone ASW defenses. We recently awarded a development contract for a new inner zone CV helicopter, a variant of the LAMPS III SH-60 airframe, which will incorporate an improved dipping sonar, the AQS-13F, be able to sustain dipping sonar operations for longer periods and have greater endurance than our current CV helicopter, the SH-3H.

To complement our airborne ASW platform improvements, we are initiating efforts to procure a new set of acoustic sensors designed to give us a tactical advantage against the evolving Soviet submarine threat. The Low Cost Sonobuoy (LCS) program will provide air ASW forces with a sensor which can be produced in sufficient quantities to be effective in detecting [deleted] Soviet submarines. It will be manufactured using robotic technology and high rate production procedures. We are looking at the manufacturing methods of other sonobuoys to obtain lower costs.

Additionally, the Horizontal Line Array and Sonobuoy Thinned Random Array Processing programs are being developed as high gain sensors. [Deleted] the Tactical Surveillance Sonobuoy will provide [deleted] increase in the area an aircraft can cover compared to [deleted] sonobuoys. Active adjunct techniques, which require the development of acoustic transmitters to complement our passive acoustic sensor systems, and the Expendable Reliable Acoustic Path Sonobuoy will provide significant improvements in active contact prosecution.

Attack Submarine Programs. In our Advanced Submarine Technology Program we are developing systems and concepts for future attack submarine classes. As required by the fiscal year 1985 budget authorization, our R&D program has approximately $30M available to advance the state of submarine technology, which can be exploited by the SSN-21 well into the next century. The R&D program also includes a vigorous program to ensure that a follow-on to the new design attack submarine can be implemented as the threat dictates.

The key attributes of our future submarines can be defined in terms of their combat control and weapons, quieting, sensors, firepower, speed, depth, survivability, and affordability. Major thrusts in the technology base for combat control and weapons include advances in combat information management, development of concepts for quieter, faster, and more potent torpedoes, and development of concepts for Arctic warfare. In the area of quieting, we are concentrating on reducing the noise generated by ducted propulsors, machinery, and weapon launching systems. Reductions in the weight and volume of hull, mechanical and electrical systems will allow our submarines to carry more weapons.

We are actively pursuing a number of technologies with direct application to the ASW surveillance capability of future submarines. The Advanced Conformal Submarine Acoustic Sensor (ACSAS) System for future SSN classes will significantly improve their ability to detect enemy submarines. The fiber optic sensor, which will be evaluated [deleted] offers superior acoustic sensing characteristics [deleted]. We continue our emphasis on automated, acoustic data processing [deleted] developments to take advantage of our superiority in computation and signal processing.

The Submarine [deleted] Program [deleted] constitutes our main near term effort to attain higher submarine speeds. This program was accelerated in fiscal year 1985 and will produce materials for full scale evaluation [deleted]. We are also evaluating innovative control surface configurations to increase the safe operating envelope for future submarines, allow higher speed operation, and improved operation in shallow water.

Greater operating depth for future submarines requires new structural materials and machinery components. HY-130 high strength steel has transitioned from the technology base and is available for certification experiments. We are making substantial progress in developing deep submergence machinery systems.

There are a number of promising programs that will pay off in the design of future submarines. Internal and external coating developments will lead to new hull coatings to reduce radiated noise. We are also focusing on other promising material developments such as advanced welding technology, ceramics, composites, and improved steels. A major effort on hull/propulsor interaction will provide the understanding needed to produce a propulsion configuration with minimum noise and maximum propulsive efficiency. Fundamental research in physical oceanography, solid mechanics and hydroacoustics will benefit submarines and other naval platforms.

New Design SSN. The SSN 21 is being developed to counter the rapidly increasing capabilities of the Soviet submarine force. It will be capable of rapidly deploying to forward ocean areas to search out and destroy enemy submarines, surface ships and land targets. The Navy attack submarine R&S program will give the highest priority to technology that can be introduced in a new submarine design targeted for an authorization date of 1989 for the lead ship.

The SSN 21 will have significant improvements in: quieting, sensors, weapons loadout and capabilities, and submerged operating envelope.

The Preliminary Design Phase is essentially complete, and we expect to proceed to Contract Design in mid-1985.

SUBACS. The Submarine Advanced Combat System (SUBACS) is a three phase development and deployment program initially providing a distributed processing architecture that will simplify introduction of follow-on improvements. Its fundamental objective is optimizing our tactical advantages against future generation Soviet submarines which is necessary to combat their greater numbers and technological improvements. This involves regaining capabilities previously reduced by Soviet advances and exploiting new concepts in detection and tactical battle management. The three phase approach best meets this objective while minimizing development risk, promoting earliest introduction of new capabilities, and providing SUBACS capability to the 1983 thru 1988 authorized 688 class SSN's (21 Ships). The SUBACS basic system, [deleted], will contain the integrated acoustic detection system with digital data bus, distributed processing architecture, UYK-44 computers and new weapons launch, navigation, and communications systems. The follow-on phases of SUBACS will provide advanced sonor arrays and the integrated combat control system containing large scale functional software improvements, operability enhancements, EMSP processors, new system control consoles and the integrated SEA NYMPH ESM system.

MK 48 ADCAP. The effectiveness of our submarine force's MK 48 torpedo has decreased [deleted] due to improved Soviet submarine capabilities. Testing to date has shown the MK 48 ADCAP will regain this effectiveness through improvements in its homing system along with increased speed and greater depth capabilities. A decision to proceed to limited rate production is expected in the middle of this year.

Signal Processing. We continue to make major advancements in our signal processing capabilities. The Enhanced Modular Signal Processor, the UYS-2, is currently being developed to meet our growing signal processing needs well into the next century. Depending on configuration and application, it provides anywhere from 1.4 to 15 times and, if needed, can be configured to provide up to 25 times, the processing power of our current standard signal processor, the UYS-1. Its modular system architecture will facilitate the incremental introduction of future advancements in hardware and software technology and plan to complete development of a VHSIC floating point arithmetic processor in time to be incorporated in the fiscal year 1988 Advanced Production Equipment deliveries. The UYS-2 will be used in a wide range of air, surface, subsurface and shorebased processing applications with early 1990's fleet introduction in such systems as: the P-3 Martime Patrol Aircraft, Surveillance Towed Array Sensor Systems (SURTASS), Submarine Advanced Combat System (SUBACS), Fixed Distributed Systems (FDS), and the Relocatable Over-the-Horizon Radar (ROTHR).

Nonacoustic ASW. [Deleted] the Navy continues to study [deleted]. In 1984 the Office of Naval Research sponsored two extensive experimental programs aimed at improving our basic physical understanding [deleted]. Several eminent scientific research institutions participated in this effort and data analysis will continue into 1985. Information obtained will [deleted] will be useful in anti-submarine warfare, and future efforts to eliminate from our submarines those characteristics that might have potential for [deleted] exploitation.

The Navy will continue research into a broad range of other [deleted] ASW sensors. [Deleted] phenomena will be explored. The understanding of these phenomena and their detection lies in the forefront of science and technology. Efforts involve [deleted] programs of higher classification.

The Navy fully supports the Congressionally authorized CIA ASW study to determine what the Soviet [deleted] program is and to ensure we understand the basic phenomena that they are exploring. We strongly endorse the study's purpose and are working closely with the CIA to ensure the most thorough study possible.

Mine Countermeasures. We are continuing to make excellent progress in developing mine countermeasure systems. In fiscal year 1985 we will begin deliveries of the first Mine Neutralization System for our MCM and MSH ships. Our AN/SSN-2 Precise Integrated Navigation System will also be undergoing TECHEVAL and OPEVAL in fiscal year 1985. [Deleted] the AN/SQQ-32 Advanced Mine Hunting Sonar System [deleted]. For airborne mine countermeasure applications, the A/N 374-1 Controlled Depth Moored Sweep and the AN/ALQ-166 wide coverage Magnetic Sweep systems are both undergoing OPEVAL this year. The AN/AQS-17 Sonar and its associated mine neutralization device will begin TECHEVAL in fiscal year 1986.

COMMAND, CONTROL, AND COMMUNICATIONS

OVERVIEW

We will continue to support developments that will increase our ability to communicate more reliably, securely and effectively with and among ships, submarines, aircraft, satellites, shore facilities, and command centers; with Marines ashore; with units of the other Services; and with allied forces. If the whole is to be greater than the sum of its parts, we must be able to exchange data and commands quickly, often times in a heavy jamming environment. We must also be able to condense, fuse, and evaluate enormous quantities of information efficiently; minimize the enemy's access to this information; reduce his ability to mislead us; and display evaluated facts to commanders so they can plan and control large scale combined land, sea, and air operations.

During 1986, we will continue to refine and improve the C^3 Systems Architecture which is the master plan and logical basis for linking intelligence systems, wide area surveillance systems, combat forces, and force commanders together. It also provides the framework for prioritizing and scheduling related C^3 developments; for coordinating hardware and software programs; and for defining the principal interfaces within the system as a whole.

Shore command and control centers that are, or will in the future, be upgraded and integrated include the Ocean Surveillance Information System (OSIS), the Anti-Submarine Warfare Operations Center (ASWOC), Shore ASW Command Centers (SACC), and the Submarine Operations Command Center (SOCC). The OSIS Baseline Upgrade (OBU), now in full scale development, will apply improved [deleted] techniques to reduce the number of [deleted] reports sent to the fleet and will improve the [deleted] OSIS sites. It will also be able to handle more surveillance data, including data from the Relocatable Over-the-Horizon Radar (ROTHR), and the data from [deleted] systems. The OSIS Baseline Upgrade design will provide a common hardware/software architecture for upgrading other shore based C^2 systems. The ASWOC will be the next system upgraded; full scale engineering development of this upgrade is scheduled to begin in fiscal year 1986.

In a similar fashion, we are proceeding with development and integration of our afloat command and control capability. The Advanced Combat Direction System currently under development is being closely integrated with existing and future C^2 afloat systems to minimize software and hardware developments.

Wide Area Surveillance. Battle group commanders need to know the location, identity, and movements of enemy, friendly, neutral, and U.S. forces within their operating areas. Studies, operational experience, and intelligence indicate that afloat commanders should be provided with surveillance information [deleted] sensors, data processing systems, and communication links [deleted] provide continuous, reliable, timely surveillance information on aircraft, surface ships, or submarines at such ranges. Furthermore, the detection ranges of [deleted] sensors [deleted] decrease if enemy forces engage in intensive electronic jamming and [deleted]. Consequently, we are working hard to develop new sensor systems, on-board processing capabilities, and required communication links.

ROTHR. One such sensor development that deserves special mention is the Relocatable Over-the-Horizon Radar (ROTHR). This program is progressing well and will enable us to detect ships and aircraft over large areas of the globe. When the ROTHR becomes operational we should be able to move it from one prepared site to another [deleted] in response to changing situations and threats.

Tactical Communications. [Deleted] tactical communication systems [deleted] resistance to jamming. [Deleted.] The JTIDS and TADIL J developments will provide high capability, anti-jam systems that will allow platforms to communicate within line-of-sight. The HFAJ program will extend communications beyond line-of-sight ranges to long distances. Extremely High Frequency Satellite Communications (EHF SATCOM) will provide a highly jam resistant alternative to [deleted] Ultra-High Frequency (UHF) SATCOM, first with the Fleet SATCOM EHF package (FEP), and later with the joint MILSTAR satellite. All new communication systems emphasize joint service and NATO interoperability, Communication Security (COMSEC), and resistance to enemy jamming or exploitation.

JTIDS. Our prime effort in achieving this essential communication capability is the JTIDS program. This system represents a significant advance in capability packaged in a small volume and, as a result, has presented some severe challenges. Some of you may be aware that the Chief of Naval Material has ammounced that there will be a nine month slip in the planned IOC as a result of a projected delay in the delivery of the JTIDS terminals from Hughes Aircraft company. However, the problems are now schedule not technical feasibility and the system is going through integration testing. An engineering development model will be available in less than a year. The contract will remain in force and the government has a capped liability at $147M.

We need the AJ features with the multiple netting capability that JTIDS will provide. Simultaneous multiple AJ C^3 nets are essential to fight our carrier battle groups under the Composite Warfare Battle doctrine, and in face of the growing multi-dimensioned Soviet threat at sea. We are determined to hold the line on costs and to get Navy JTIDS into the fleet.

HFAJ. The High Frequency Anti-Jam (HFAJ) program will develop a new family of broadband frequency hopped high frequency communication equipment for all platforms. Hardware specifications will emphasize commonality of components across all platforms and the acquisition strategy will assure competition in both development and production. Modern waveform and network designs will increase the reliability of communication links through the variable HF medium, and reduce vulnerability to exploitation and jamming. In addition to providing a unique capability to communicate at extended line-of-sight ranges without a relay platform, HF will serve as the ultimate backup for strategic and tactical communications.

ELECTRONIC WARFARE

OVERVIEW

We are developing Electronic Warfare (EW) systems that will allow the Navy to conduct both defensive and offensive electronic warfare over a large part of the electromagnetic spectrum. The ability to use our own sensors, data links, and weapons effectively while denying the enemy the use of similar systems will, to the extent we are successful, be a key factor in multiplying the effectiveness of U.S. forces. Effective EW can result in the advantages of surprise; the realization of the full potential of a battle force; and can reduce U.S. losses. We are, therefore, supporting four broad categories of EW developments: (1) new systems for managing and coordinating the use of EW assets at various levels of command, including jam resistant communication links; (2) sensors and EW receivers; (3) jammers, decoys, new chaff systems, and other EW counter measures; and (4) EW simulators, trainers, and T&E facilities.

PROGRAM HIGHLIGHTS

The Electronic Warfare Coordinator's Module (EWCM) will enable a Battle Force Commander to manage his own and other EW assets. He will be able to plan, conduct and execute EW, monitor its effectiveness, and rapidly implement necessary decisions. The Electronic Warfare Control System (EWCS) will perform the actual EW integration function at the platform level, enhancing the CO's ability to conduct warfare operations. We will continue to support a joint program with the Air Force to develop a fully integrated airborne EW suite. This Integrated Electronic Warfare System (INEWS) will provide full spectrum EW capability optimally integrated into tactical aircraft.

With respect to EW receivers and countermeasures, a number of improvements are being introduced in the surface ship anti-shipping missile defense EW suit, the SLQ-32 systems. These include increased sensitivity, [deleted] low band direction finding accuracy improvements, and software changes. Most of these improvements will be made by tiger teams using field change kits. This year [deleted] improvements will be tested. For aircraft carriers, similar improvements will be incorporated in the SLQ-17 system. In addition, the Advanced EW System is scheduled to begin FSED this year, and [deleted] the WLR-1H EW receiver will be tested.

The first production model of the Increased Capability II revision of our EA-6B support ECM aircraft was delivered early last year and has passed Follow-on Operational Test and Evaluation with flying colors. We will be integrating the ALQ-149 system into the EA-6B ICAP-II to provide the fleet with organic communications jamming. Previous plans called for initial integration into the EA-6B ADVCAP which is now under development. This ICAP II approach will accelerate ALQ-149 fleet introduction [deleted].

The Active Electronic Buoy is being developed to [deleted] defense for U.S. ships; the Chaff Buoy, a passive device, is nearing completion of development; AIRBOC is an air deployed cartridge that generates a chaff cloud and has also nearly completed development. The Ship Launched Electronic Decoy (SLED), [deleted] and the Counter ARM Decoy (CAD), [deleted] advanced development tests have been successful. Both projects are coming up for FSED decisions this year. The SLED FSED will probably be a joint effort with Australia.

ASPJ. The Airborne Self Protection Jammer (ASPJ), a Navy lead joint program with the Air Force, will provide the defensive electronic countermeasures suite for the Navy's first line tactical aircraft. The program has experienced schedule slippage and cost growth due mainly to technical and vendor related difficulties; however, a contract cost cap has been negotiated and is in place. Due to the schedule slips, start of initial production will be in fiscal year 1986 vice fiscal year 1985. We estimate the contractors full scale engineering effort to be 85% complete and the ASPJ prototype No. 6 (of 12) has just been delivered. It will undergo environmental and electromagnetic interference testing as other prototype units are undergoing performance testing at Point Mugu and integration into the F-16 and F/A-18. Flight tests will begin in May and June 1985 for the F-16 and F/A-18, respectively, with developmental and operational evaluation testing to be conducted in fiscal year 1986.

In the area of Electro-Optical countermeasures, the Navy has been supporting the Air Force by conducting field tests with Compass Hammer to obtain technical performance data. We are also conducting engineering tests of Generic Expendable or GEN-X, a follow-on to POET. Improved flare designs [deleted] will be tested this year.

We have several initiatives to provide more realistic operational test and evalutions of EW components and systems. The CROSSBOW-S generic radar was delivered last year and was initially installed at Eglin Air Force Base under a Memorandum of Agreement with the Air Force. This software reprogrammable radar simulates many different threat radars. When planned modifications are completed next year, it will enable us to simulate the most modern naval threat systems and will be the cornerstone of the Navy's EW simulation modernization program.

As desired by Congress and the GAO, oversight of Navy OT&E EW simulators is being conducted by a single flag officer, the Director, RDT&E. Additionally, through the Joint Executive Committee on Air Defense Threat Simulators (EXCOM), all Services' simulator development efforts are being coordinated to eliminate redundancy and ensure commonality.

MARINE CORPS PROGRAMS

OVERVIEW

We continue to give strong emphasis to improvements in the capability of our Marines to meet the challenge of amphibious warfare around the globe. The Corps must have capable, cost effective, and logistically supportable equipment. The Marines participate in joint developments with other Services to satisfy common requirements whenever possible. Unilateral developments are undertaken only in cases where unique Marine Corps requirements exist or significant savings can be achieved. The Corps emphasizes low-risk, state-of-the-art technology, service life extension programs, and preplanned product improvements. Systems are required that are readily transportable or moblile, flexible, and affordable, whether they are intended to deliver troops and weaponry ashore, maneuver them on the battlefield or provide the vital command and control links that make effective combined arms employment possible.

PROGRAM HIGHLIGHTS

MV-22A (JVX). I have discussed this program, but emphasize here only that it is of particular importance to the Marine Corps. The MV-22A will give the Marine Corps unparalleled operational flexibility by providing a means to deliver two assault waves ashore from 50NM without refueling or to transport 24 combat troops to an objective 200 miles away. An IOC of 1991 is necessary to replace aging helicopters.

LAV. The highly successful Light Armored Vehicle (LAV) program will satisfy the Marine's requirement to increase tactical mobility while improving firepower. The six mission role vehicles already approved for procurement will give the maneuver elements the means to counter the armored mobility of adversaries. The development of the assault gun and air defense variants are being continued to round-out this versatile family of fighting vehicles.

The Assault Gun (LAV-AG) mission role vehicle will add a rapid, direct fire capability that can be lifted by helicopters. We have not yet determined the armament for the LAV-AG, but an automatic cannon or a missile, such as a modified TOW or a hypervelocity missile (HVM), are among the alternatives being considered.

The Air Defense (LAV-AD) variant should enter FSED early this summer. The present configuration employs a GAU-12 25mm Gatling gun with Stinger missiles. Target acquisition will be provided by a forward looking infrared (FLIR) and a laser range finder.

Assault Amphibians. The Marine Corps has a requirement for an advanced amphibious assault vehicle to replace the LVT7A1 in the late 1990's. The goal is to achieve a design that will significantly improve survivability in addition to achieving faster speeds in the water and increased agility in the water and ashore. In conjunction with this effort we are moving ahead with development of the rotary engine and light weight armor concepts.

RPV's. The Marine Corps has a new requirement to obtain near-real-time battlefield reconnaissance, surveillance, and target acquisition information without risking expensive manned aircraft. A Remotely Piloted Vehicle (RPV) development program has been initiated to select a system with a video sensor and radio relay equipment to meet a fiscal year 1988/1989 initial operational capability (IOC). The system configuration will be decided after testing promising off-the-shelf components.

A related capability, the All Source Imagery Processor (ASIP), is being developed to meet the Marines' requirement for near-real-time sensor data. It will be designed to receive, process, and exploit imagery from organic, theater, and national sources. It will also generate tactical intelligence reports derived from the exploitation of that imagery.

Armor. Since the M60A1 Tank is reaching the end of its service life, we need to upgrade or replace it. The preferred alternative is the M1A1 Abrams Main Battle Tank. We have been monitoring the Army's tests and the Marines have recently completed their own unique operational testing in an amphibious environment. The results of the testing have proved acceptable, and we are moving towards a procurement decision.

Firepower. The Shoulder-Launched Multipurpose Assault Weapon (SMAW) gives the Marine Corps a unique bunker-busting capability as well as a means of breaching walls in urban areas. The SMAW was fielded in November 1984, and an antiarmor round is being developed for introduction in 1987. Development of an improved warhead for the Dragon Medium Antiarmor Weapon will begin this year. The Dragon sight will also be improved to enhance its accuracy and resistance to countermeasures. This will give the Marines interim antiarmor capability while the Army completes development of its Advanced Antitank Weapon System (medium). In conjunction with the Army, the Marines are replacing the 81mm mortar with the improved 81mm made by the Royal Ordnance Factories in Great Britain. We have also evaluated a lightweight 120mm motor. The increased range, accuracy, and lethality of this weapon are impressive. We are closely monitoring Army deliberations concerning the possible acquisition of this weapon.

The Corps' artillery is being modernized with the selection of the Army's Battery Computer System to increase the accuracy of supporting fires and to speed the response to supported units. This system will be interfaced with the Digital Communication Terminals now in production to provide a secure communications link to supported forces.

Command, Control and Communications. The Tactical Air Operations Central, 1985 (TAOC-85) is our program to replace the aging Marine Air Command and Control System now in use. TAOC-85 will provde flexibility and allow tailoring of the size of the system proportionally to the unit supported. Fewer Marines will be required to operate this system, and it will incorporate current computer technology and communications equipment. It will also have the mobility and flexibility of helicopter transportation.

The Marine Integrated Fire and Air Support System (MIFASS) is another vital tactical command and control system scheduled for intitial operational testing this year. MIFASS will provide the tactical commander an automated capability to coordinate the employment of all supporting arms including mortars, artillery, naval gunfire, and close air support. MIFASS will fully integrate all the individual fire support systems on the battlefield of the future.

In the area of tactical communications, we are operationally testing the Unit Level Circuit Switch (ULCS) on a Joint Command, Control, and Communications Agency test bed to verity that improvements made by the contractor have corrected discrepancies found during tests last year. We will decide whether to procure the system in April of this year based on the test results.

INTERNATIONAL R&D COOPERATION

International R&D Cooperation. We are involved in the efforts of the Department of Defense to cooperate with NATO allies and other free world countries to standardize or make interoperable equipment and weapons systems. Navy participates in R&D programs supporting common NATO requirements, evaluates foreign weapon systems, and co-developes and/or co-produces selected weapon systems and equipments. Navy also supports international industry-to-industry cooperation. Examples of programs that satisfy common requirements of NATO nations are, Infrared Search and Track (IRST), (US/CANADA), and Link 11 Improvements (NATO). Foreign systems being evaluated for possible procurement include PENGUIN Missile Guidance Unit (Norway), Missile Launch Detection System (France), Integrated Communication System III (UK) and Versatile Exercise Mine System (UK). Co-development and/or co-production programs include Rolling Airframe Missile (RAM) with Denmark and Germany, NATO SEASPARROW Point Defense Missile System, NATO Sea Gnat and NATO Frigate Replacement for the 1990's (NFR-90). In addition to our participation in cooperative R&D with NATO, we are actively looking to the initiation of programs with other free world countries, most notably Japan and Australia.

In late January at the invitation of the Chinese Government, I led a U.S. delegation to China to continue work on the initiatives begun by the Secretary of the Navy during his visit to the PRC in August 84. In addition to discussions with senior military leaders and other technical and civilian military experts, our visit included inspection of PRC factories, design institutions, shipyards, air and naval bases and ships and aircraft of the PLA-Navy. Before returning to the United States, we exchanged minutes documenting the progress to date in the Navy-to-Navy Cooperative Program. [Deleted.]

CONCLUSION

As I have pointed out in my report to you, we are committed to a vigorous program that strives for excellence. Our planning and management is straight forward and we have proved that we can reduce the costs of many acquisitions. I believe we have a consistent, balanced, coherent and responsible plan and program that supports the Navy's overall maritime strategy. Our programs are matched to the threat we face now and well into the future. The programs that the Congress has supported over the past four years are paying great dividends to our nation. I am confident that our constructive relationship will maintain this momentum. Thank you. I am ready to try to answer your questions.

Senator COHEN. I have a few questions that I can run through quickly.

The Navy R&D account apparently is projected to grow by 17 percent in fiscal 1986. It is kind of difficult to evaluate possible cuts in this year's R&D if we can't get information for the out years.

Apparently you have a 5-year program for R&D. We only get it for 2.

I was wondering why there is hesitancy to share the long-range program for R&D with the committee?

Mr. PAISLEY. I won't say this is traditional. I wish I could give it to you in the out years because I would save myself a lot of work this summer because we are in the middle of the POM process.

As you know, we give you 2 years and the rest unfolds as we go through the POM process. We actually don't have a solid third year that one could sit down and give you without going through this POM process that we go through in the summer.

Let me ask you something. We are not negligent in not doing this.

Does somebody else do this while we don't?

Senator COHEN. I think there is probably less coming from the Navy than from the others.

Mr. PAISLEY. Do you think in the R&D area we are holding back?

Senator COHEN. Yes.

Mr. PAISLEY. That is not a quantitative statement I notice. [Laughter.]

Senator COHEN. No.

Mr. PAISLEY. I would like to do better but I have constraints. The truth of the matter is that the third year is modified by the POM process. The procurement area gets more definitive.

Senator COHEN. The point I am trying to make is we are trying to have continuity in what we are doing. If the committee starts making cuts in various parts of the budget and we have no idea what lies down the road, there isn't any long-term continuity.

What we are trying to do is find a way that we can work together rather than working as adversaries. If you want to pledge yourself to providing more information, I am sure the committee will be very happy to have that additional material.

Mr. PAISLEY. Why don't I say as a minimum, I will work harder at it. If I told you I would bring over the third year, I am not sure I could get it out of the building.

Senator COHEN. Or is it they wouldn't let you out of the building?

Mr. PAISLEY. That is right.

Senator COHEN. We will followup with you on that later.

We have here some testimony about what we are doing with the SWATH—small waterplane area twin hull—technology.

Admiral, how capable are the existing smaller ships such as the frigates and TAGO's, when operating in high-sea states in the North Atlantic?

Admiral BACIOCCO. As you know, we have had a SWATH test craft for a number of years out in Hawaii, SSP *Kaimalino.* We certainly understand that SWATH has very impressive capabilities in high-sea states.

Compared to a monohull, the standard type of ship, a SWATH is capable of proceeding at nominal speed in very high-sea states, where a monohull ship would have to slow. I think any prudent sailor, no matter what the seas, would tend to avoid the weather.

The SWATH has an advantage if you have to go somewhere in spite of the weather and stay there for a given payload, that is, a given combat suite, our estimates show that you would pay more for SWATH, somewhere around 10 to 20 percent.

So, if there is a mission where you must send a ship out and keep it on station in spite of the weather, it might be worth 10 to 20 percent.

I know the DCNO for surface warfare, Vice Admiral Metcalf, is very interested in SWATH. As we investigate alternatives for a future frigate class, SWATH certainly will be one of the designs that he will be considering.

Senator COHEN. I hope the Navy does maintain its interest. It seems to me that it has some pretty valuable applications. Admiral Metcalf did testify to this. I hope the Navy will continue to show interest and explore to what uses it can put this technology.

Mr. PAISLEY. Mr. Chairman, I might suggest that I come over, if any of us can find spare time, to talk to you about a program that addresses this issue.

Senator COHEN. OK.

P-3

Let me turn quickly to the computer on the P-3 aircraft called the AQA-7.

Are you familiar with that, Mr. Paisley?

Mr. PAISLEY. Yes.

Senator COHEN. There is a proposal being circulated here on the Hill to add $10 million to the Navy's R&D account for sole source upgrade to this computer.

One, has it completed the operational test and evaluation and been approved for service use?

Mr. CANN. This subject goes back a long way. We have a series of updates to the P-3 aircraft. We have five updates to the P-3. The most recent update which is now going into the fleet is called update three. It has at its heart a signal process or which we have developed over 10 years, called the advanced signal processor, or ASP as it is known.

We have proliferated that particular unit not only in the P-3, but the S-3, in LAMPS and into the towed arrays for surface ships and submarines, and so forth. We did this for a very specific reason.

It has to do with software maintenance and also electronic maintenance. What we have done is ruthlessly tried to cut off the wholesale application of ad hoc processors and computers because the upgraded P-3 update three system is going to be infinitely better than an upgraded AQA-7 system. We are going through and backfitting the Update III into all P-3C's.

We now have in addition a far advanced system based on EMSP which I know your staff is familiar with, that will go into the update four program.

The real problem, Senator, is that we have had an uncontrolled situation for many years where everybody was developing a different signal processor which required different software and different maintenance.

Senator COHEN. So you don't support this particular upgrade?

Mr. CANN. No.

Senator COHEN. You would assign a very low priority to it, if any at all?

Mr. CANN. That is right.

TECHNICAL DATA RIGHTS

Senator COHEN. Let's move on to data rights.

What is the Navy doing to maximize its ownership of data rights?

Mr. PAISLEY. I touched on a couple aspects of it when I covered some of the programs. The bottom line is for any program our position is get techncal data rights. We are going to get them.

Senator COHEN. During the R&D phase?

Mr. PAISLEY. Yes; if you are going to have them for production, you get them in R&D. That is the problem, you get ready to go into production, you don't have the data. That is why I said earlier competition starts in R&D.

If you are going to compete the program, you are going to start worrying about the day you let the first contract, get data rights and, just as important, be sure you are going to get the data validated. It has to go through a validation process.

Fundamentally our position is we get data rights on everything. Not only that, we fundamentally make the rule we own the data rights to anything that a contractor is working on for us.

Senator COHEN. Are there any companies that disagree with that policy and try to withhold either technical data or commercial rights?

Mr. PAISLEY. They all debate it. If you get to the top of a company, it is like any organization, the problem goes away. Companies in general recognize the fact that if they are dealing with the Government, the Government is paying them, the Government has rights to the data.

The thing that causes the problem is a thing called process specifications and we are a little careful about how hard we squeeze in getting process specifications.

Senator COHEN. Do they advise people down the line as they fight this tooth and nail, "If Mel calls us, we will back off"?

Mr. PAISLEY. Yes; when you find the right people to deal with in the company it is so easy——

Senator **Cohen**. When you say easy, you say, "give us the technical data or you don't get the contract?"

Mr. **Paisley**. Our position is we are a customer of yours, the technical data rights belong to us. It is not a matter of your giving something belonging to you. This belongs to the Navy.

There was a classification of Williams engine this year. It said if the Government spends dollars on any data, they have total rights to the data. We push that as far as we can. We get into disputes on this thing, but we have yet to lose one of these. Contractors in the end will come to you. You just have to push them.

The data belongs to the Government. You have to get it out of them. We are going to get data rights. It is needed.

Senator **Cohen**. The ASW Stand-Off Weapon is the designated successor to SUBROC. The question I have is, what cost or schedule problems are you incurring with this system?

Does the Navy have any kind of firm grasp on what the outyear R&D cost will be?

Mr. **Cann**. One of the problems is we took a $10 million cut last year from the Congress.

Senator **Cohen**. That is why I mentioned we would like to know what is going on with R&D, because as we start cutting things, there is an impact farther down the line.

Mr. **Cann**. We have a few perturbations in this year which will require an extra couple of million dollars. But to take care of the $10 million cut we took last year, and when you project the impact over the outyears with inflation, it ends up being an approximately $20 million cost increase to the total cost and the program is about a year late.

Senator **Cohen**. Then that has been the impact—the $10 million cut resulted in an increase of $20 million?

Mr. **Cann**. Yes, sir.

Admiral **Baciocco**. And a 6-month slip in the IOC.

Senator **Cohen**. I think that is all I have.

The subcommittee will go into closed session. The room will be cleared.

[Whereupon, at 3:07 p.m., the subcommittee proceeded in executive session.]

EXECUTIVE SESSION

Senator **Cohen**. The room has been cleared. We are now in executive session. Senator Glenn is on his way here, Senator Exon is coming in now, who may want to ask some questions.

Mr. Paisley, how long is the film?

Mr. **Paisley**. Six to eight minutes.

Admiral **Baciocco**. If it is convenient, we have one other film we would like to show on the SSN-21 R&D.

Senator **Cohen**. Senator Exon, we have gone into closed session to watch one or possibly two films.

Senator **Exon**. Proceed, Mr. Chairman. I will stay as long as I can. I was over in Budget and I have to go back.

[Film presentation.]

Senator **Cohen**. Admiral, what were some of the design issues that have not been fully resolved?

You said earlier that the major design factors have all been resolved for the SSN-21. There were some minor ones that you wanted to discuss in this closed session.

Mr. PAISLEY. I think probably the issue that we wanted to discuss was the sensor suite.

Jerry might say a little bit about that.

Mr. CANN. By way of background, at one point last year when we appeared here we had indicated that for a lot of reaons we wanted to put the torpedo tubes forward so that the torpedo tubes could fire straight out. That was because we did not have a good feeling for how fast you could run this ship and actually shoot a torpedo.

In the meantime, we ran a series of experiments and found out we could successfully fire torpedos [deleted] which was, frankly, a surprise.

As a matter of fact, I see it firing at [deleted] a safe speed to do it.

One of the problems with putting the torpedo tubes forward [deleted]. After we took a look at the initial preliminary design about 3 months ago, we realized we did not have what I would call a balanced suite [deleted].

We had to pull a team together of all the people involved from all the laboratories, shipbuilders, Navsea, and so forth. They went off by themselves for a month and did all the necessary trade-offs to come up with redesign of the front end. After much discussion the result was that we went to a [deleted] which is going to give us superlative capability; move the torpedo tubes aft, maintain the [deleted] torpedo tubes slighted canted and [deleted] weapons.

[Deleted.] Right now we have a very balanced and very good acoustic suite in the submarine. In fact, we are much better off than we were a year ago.

At the present time the kind of issues that we are still discussing are those that will be resolved in contract design.

Senator COHEN. You also mentioned there were some things that couldn't be done any further with the 688 to get further reduction in quietness because of the volume factor.

Mr. CANN. One of the key elements in the SSN-21 is noise reduction [deleted]. You run out of room inside the 688 submarine.

In addition, in order to handle the kind of [deleted] effort you have to put in, you need larger pumps. You have no room inside the 688 to add this kind of equipment.

We are making improvements in the 688. We are going to [deleted] make some incremental quieting improvements. It is our estimate that improving the 688 will get us [deleted] the quieting goals for the SSN-21.

Fundamentally, though, there is another big difference between the 688 and the SSN-21 [deleted].

So, the combination of noise quieting and sensor improvement,—I would say, roughly result in the SSN-21 having a [deleted] advantage over the improved 688. That is very significant.

Senator COHEN. One final question. Trident II accuracy.

Mr. PAISLEY. I think the specification [deleted]. Experience tells me from watching the other programs we are probably going to get a little better than that.

Senator COHEN. Senator Exon, do you have any questions?

Senator **Exon**. Mr. Paisley, fill us in a little bit more on the Phalanx system. In the test we saw on the screen, was that used against what could be considered realistic target attack, incoming targets?

Mr. **Paisley**. Yes; we ran a series of tests with drones of all types, including surface, sea skimming. The Secretary then said, what about something that has a little bit more nerve in it [deleted].

Actually we made an agreement with the [deleted]. I think it was very realistic. We are, by the way, testing right now with the Harpoon. [Deleted.]

The range on that is such that you are operating pretty close in. The results were very good. The question always comes up: Are we going to need to improve CIWS at all in terms of the size of the projectile or the range?

Phalanx is actually a terminal defense system. I tell you one thing, you have to see that, watch it operate. You will never get an airplane near one of those ships at this range. There is no way you will get an airplane near a ship like that.

That is why, of course, we started building stand-off capability and that, of course, is what the Soviets will do too.

Senator **Exon**. Maybe we should take that and give it to General Dynamics so they can put it out for us.

Mr. **Paisley**. What do you mean?

Senator **Exon**. I understand you to say that if an airplane knew that that weapon was going to work, they would not come close; is that right?

Mr. **Paisley**. Yes.

Senator **Exon**. My point is if the Russians found out about that, they would keep the airplane out of the area?

Mr. **Paisley**. Yes; it is a very effective weapon, recognizing that we have air defense in depth. That is the whole Navy game. It is not different in ASW. It takes about three zones of activity to get this problem worked.

Senator **Exon**. Could you enlighten us a little bit about mine countermeasures?

We are moving now into this whole area. I believe that our NATO partners are maybe a little bit ahead of us in some of these mine countermeasures.

Do you agree with that?

Are we keeping up with them in this area and what is going on?

Admiral **Baciocco**. I think, Senator, that in terms of platforms, and specifically mine countermeasure ships, they have more platforms than we do and by that measure they are ahead of us.

In technology and systems we are very close because we share many types of systems. As you know, we have made an investment in helicopter mine countermeasures and in that content we are ahead of them.

We now have a shipbuilding program to build the MCM-1 AVENGER class ship, and follow that with the smaller mine sweeper hunter [MSH] called the Cardinal class ship. The Navy recognizes the need for these ships.

We do have close cooperation with the mine forces of the NATO and Japanese navies. I think there is a good exchange of information there and a lot of knowledge gained on our side through that mechanism.

Senator EXON. There has been some concern over a period of time that if we should get into a shooting war with the Soviets in Europe, most of our equipment would have to go over there by sea.

Where are we, in your opinion, right now with regard to being able to sweep the ports we would have to come into?

They certainly would be mined. We have to anticipate the mines would be laid. Since we don't have a great deal of capacity for that, do our NATO allies have sufficient capacity as of today to keep the key harbors open?

Admiral BACIOCCO. [Deleted.]

Senator EXON. I have questions that I would like to put in the record and ask that they be answered at the appropriate time.

Senator COHEN. They will be included in the record and you may respond as soon as possible.

I suspect Senator Glenn will want to submit his questions for the record.

I will be keeping in touch with you on the R&D issue.

Mr. PAISLEY. We will try to figure out how to do it.

Senator COHEN. Just bring the information over.

Mr. PAISLEY. I have a fundamental problem. I really want to do it. The best way is to get some dialog going with your staff and try to extend it. That is the best way.

Senator EXON. Is the D-5 Program on track?

Are we within the timeframes that we heard about a year ago? Have we had any significant setbacks? Briefly tell us how goes the D-5.

Mr. PAISLEY. I can give you a little more detail for the record. I would like to make a statement about it. I have been involved in strategic systems over 30 years. My business used to be that when I was at Boeing.

I saw the Navy at that time as a competitor because we were working on the Air Force Minuteman system. I can tell you without a doubt that the Trident Program is the best managed program in the entire Government, let alone the Navy. We have our best people in depth in that program.

I have no reason to think we are not going to meet the commitments we have made. That program is the premium program in the Navy.

Senator EXON. Encouraging words.

Mr. PAISLEY. Those are really the facts, Senator.

Senator EXON. Thank you very much. I am glad to hear that. I am sure the chairman is.

Thank you for coming. I am sorry that I was late, but I got in on some things I wanted to see and I appreciate your forthcoming attitude.

Senator COHEN. The subcommittee stands adjourned.

[Questions with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR DAN QUAYLE

PRECISE LAND-ATTACK MUNITION

Senator **QUAYLE**. Does the Navy have any precise land-attack munition that can operate effectively at night without having to illuminate either the target or the ground? Doesn't the Navy have any requirement for such a precise standoff munition or cruise missile? If it does, when and how does it expect to meet it?

Mr. **PAISLEY**. The Navy intends to procure the Imaging Infrared (I^2R) Maverick missile starting in the fiscal year 1986 budget. The missile will start Navy operational evaluation in April 1985. Although the Navy variant of the I^2R Maverick is optimized for ship attack, it provides a near-term capability against well-defined land targets, at night, but not in all weather. The Navy does have a tentative operational requirement for a standoff land attack weapon beyond the performance of I^2R Maverick, in terms of additional range and all weather (day and night) launch and leave capability, and options to fulfill this requirement are being examined.

QUESTIONS SUBMITTED BY SENATOR J. JAMES EXON

AEGIS

Senator **EXON**. You stated in your testimony that Aegis/standard missiles defeated 10 out of 11 missiles fired at the CG-47. [Deleted.]

Can you resolve this discrepancy?

Mr. **PAISLEY**. Although Aegis has substantial performance capability in a jamming environment, significantly more than any previous system, [deleted].

Data covering the April and September 1984 missile firing exercises [deleted] has been extensively reviewed. Three problem areas have been identified: [Deleted.]

Changes to the SPY-1A program (CPPR's 23401 and 23402) are being processed which will prevent loss of track and low cross-section targets and will modify the logic controlling the insertion of STC. This will increase SPY-1A performance at the ranges and elevations at which the problem was noted.

Various tools are available to the RSC operator which allows him to utilize the radar efficiently; for example, ECM sector logic, Auto Moving Target Indicator enable/disable. The training material is being reviewed to ensure that these tools are properly described and the operators are briefed on their correct usage. Misapplication of these tools can degrade the rader performance; for example, by reducing the amount of available processing time available for above horizon search dwells.

The process to measure the radar sensitivity is being reviewed with the intent to generate a procedure easily executed by ship's company. In this regard, the sphere tracking process and related ORTS tests are being reviewed to determine if any revision is required.

Resolution of these three problem areas [deleted].

ACOUSTIC ADVANTAGES

Senator **EXON**. [Deleted.] Are we conducting sufficient research and development in order to ensure that the United States maintains its "acoustic advantage?" Specifically in three areas—[deleted]—are you confident that the current levels of spending will ensure U.S. acoustic "superiority" through the foreseeable future?

Mr. **PAISLEY**. We are maintaining a large techbase [deleted]. This effort is well supported for transition to development. The current levels of spending in R&D in these areas support the delivery of the SSN-21 which will ensure U.S. acoustic superiority well into the 21st century.

NAASW PROGRAM

Senator **EXON**. As a corollary, I understand that newer large Soviet submarines are significantly more quiet. My staff has also told me that as submarines become larger, they may become susceptible to nonacoustic means of detection some time in the future. What efforts are being made in terms of research and development in the area of nonacoustic antisubmarine warfare.

Mr. **PAISLEY**. There are a variety of reseach and development activities in the area of nonacoustic and antisubmarine warfare each at a different stage of maturity.

With respect to direct detection of the submarine, current efforts include: passive detection [deleted] concepts. [Deleted.]

Senator **EXON**. Has the funding in nonacoustic detection technologies changed following the appearance of the new larger classes of Soviet submarines? What portion of

ASW R&D was devoted to nonacoustic technologies in 1980? What portion is so dedicated in 1985? In 1986?

Mr. **Paisley** There has been no specific increase in nonacoustic sensor development due to the advent of the new, larger classes of Soviet submarines. The proportion of nonacoustic means of detection to total Navy ASW R&D continues to grow at a nominal rate, [deleted].

AMCM SURVIVABILITY

Senator **Exon**. I am told by my staff that the Soviets have developed a mine which is designed to destroy [deleted]. Is any research and development being conducted [deleted]."

Mr. **Paisley**. The Soviets have no known [deleted] at this time. A 1983 DIA analysis of the Warsaw Pact Mine Warfare Threat indicated that ". . . if the Soviets become concerned [deleted]."

The Navy currently has no R&D aimed specifically [deleted]. If such [deleted] were to be developed, R&D programs currently developing [deleted] systems for land-based helicopters (including the CH–53E) would be adaptable to our AMCM helicopters.

R&D BUDGET

Senator **Exon**. The Navy's R&D budget request is for about a 17-percent real growth increase from last year. We are more likely to get 3 percent at the very best. What priorities should guide our efforts in making reductions to the R&D account?

Mr. **Paisley**. The highest priority programs are, of course, our strategic programs. Our other R&D programs have survived a tough screening process and are also like children; they are all important to us and we would be sorry to see any of them cut. However, pressed on this point, I would have to acknowledge that the following four projects are of somewhat lower priorty than others: PE 64779N/X1905 Joint Operational Interface Simulation Training System [JOIST]; PE 63532N Ship Systems Engineering Standards [SSES]; PE 63788N Rapidly Deployable Surveillance System [RDSS]; and PE 63573N/S1314 Electric Propulsion System.

SSN–21

Senator **Exon**. How much R&D can be cut from the SSN-21 account before the fiscal year 1989 funding and 1995 initial operating capabilities milestones have to be modified?

Mr. **Paisley**. The SSN-21 Program has been undergoing careful review and any significant reduction in the current funding levels through fiscal year 1989 would impact the [deleted] IOC milestone.

MINES

Senator **Exon**. What research is currently ongoing for new naval mines? What types of new mines are we developing, especially to be effective against Soviet submarines [deleted]. How soon will any R&D efforts in this area yield results for deployable systems?

Mr. **Paisley**. The Navy's New Generation [NGM] Program is underway to identify specific mines needed to address the threat into the 21st century and to initiate actual development of these mines. A two-phase effort has been established to implement the NGM Program consisting of a requirements and technical assessment phase [deleted] and a contract initiation phase [deleted]. The [deleted] phase consists of a program to identify the types of mines required to address the projected threat, and testing 5 different candidate sensors against targets simulating the projected threat. Results of these tests will be incorporated into the specific mines recommended for development, identification of which is anticipated [deleted]. In addition, the Navy has an Active Mine Exploratory Development Program (6.2) which is concentrating on areas [deleted]. These technology investigations will directly impact the development of the mines. The [deleted] phase of the New Generation Mine Program will consist of establishment of contractual specifications and contractor selection for development. Technical investigation directed toward the specific mines recommended for development will also be conducted during this period. The projected initial operational capabilities for the new mines [deleted] however it is conceivable that R&D effort now being conducted may be utilized earlier in the form of modifications to existing systems (i.e. Captor, Quickstrike, SLMM).

PENGUIN

Senator EXON. What is the status of research and development efforts for the fitting of Penguin missiles to LAMPS helicopters?

Mr. PAISLEY. The efforts have been delayed while the Navy is reviewing the total cost of the program. However, the Navy is planning to equip LAMPS III with Penguin missiles.

Senator EXON. The staff tells me that extensive changes to the missile, unrelated to the helicopter adaptation, have significantly raised the costs of the R&D—specifically, making the weapon "insensitive" to mishaps such as fire, explosions etc.

Mr. PAISLEY. Since the "lessons learned" from the United Kingdom's experience in the Falklands were published, the U.S. Navy made the decision to convert all new procurement ordnance to be "insensitive." This will eliminate the possibility of own ship weapons causing secondary explosions, which often are more damaging than the incoming ordnance. Penguin is not being singled out, it is just the first ordnance to be considered since the decision was made. Penguin is being reexamined at this time to determine if the missile must be fully "insensitive".

Senator EXON. Why is the Navy now considering switching the missile to the F/A-18 instead of the LAMPS platforms?

Mr. PAISLEY. In the recent review that the Navy initiated to reduce the overall cost of the program, other platforms were examined to determine if Penguin could be installed. The Navy may at a later date decide to install Penguin missiles on other platforms, but it certainly will be installed on LAMPS MK III helicopters.

QUESTIONS SUBMITTED BY SENATOR GARY HART

SSN-21

Senator HART. What leads you to believe that the increased unit cost of the SSN-21 will not lead to a reduced production rate and a lower force level?

Mr. PAISLEY. SSN-21 cost ceilings, in 1985 dollars, will be $1.6 billion for the lead ship and $1 billion for the fifth and follow-on ships. These procurement costs will permit us to maintain a 100 SSN force with about the same share of ship building [SCN] funds as the attack submarine force has historically enjoyed. Therefore, the building plan transition to SSN-21 is achievable at the planned building rate.

Senator HART. How much of a reduction in the force level are you willing to accept in order to obtain the SSN-21?

Mr. PAISLEY. The Navy cannot accept a reduction in SSN force level and execute the U.S. maritime strategy. A forced level of 100 SSN's has been established as a goal consistent with a balanced, affordable, 600 ship Navy. We are building to that goal and will reach it [deleted]. Some studies have shown a need for more than 100 SSN's to provide the additional assurance that all possible missions could be carried out under the maritime strategy.

Senator HART. If you knew resources would be limited to the level necessary to procure four SSN-688's annually, would you prefer to buy four SSN-688's or the fewer than three SSN-21's the same amount of money would procure?

Mr. PAISLEY. The rapidly improving Soviet submarine threat establishes a clear need to transition from the SSN-688 class to the SSN-21 class attack submarine. Improvements to the SSN-688 class are extensive and maintain our ability to counter the threat of the highly capable Soviet submarine being built today. But space and weight limitations preclude additional SSN-688 class improvements [deleted]. The SSN-21 is needed to meet the Soviet threat [deleted]. We must make this orderly transition to the SSN-21 with its step improvements in quieting, combat performance and mission capability. Each SSN-21 gives us force enrichment which will be a force multiplier for the maritime strategy. Once the transition is made, it will be essential that we have a building rate that will maintain a sufficient force level as all pre-SSN-688 class SSN's are retired from service.

Senator HART. Will the increased size of the SSN-21 increase its vulnerability to nonacoustic detection? If not, why not?

Mr. PAISLEY. [Deleted.]

The detection [deleted]. This results in decreased vulnerability.

Senator HART. Under current plans, SSN-21 class submarines may be in service to the year 2040 or even beyond. How confident are you that the submarine's large size will not become a significant vulnerability during that time? Are nonacoustic means of detection likely to improve over that period?

Mr. **Paisley**. Advances in knowledge of physical processes, technological capabilities, and signal processing undoubtedly will lead to evolutionary improvements in [deleted] detection capabilities, as in all other fields. [Deleted.]

Senator **Hart**. Does the Soviet Union have a substantial research program underway in nonacoustic ASW?

Mr. **Paisley**. [Deleted.]

Senator **Hart**. Have the Soviets recently deployed any new nonacoustic submarine detection systems? If so, will the SSN-21 be more or less vulnerable to them than the SSN-688? Than the SSN-637?

Mr. **Paisley**. [Deleted.]

F-14 UPGRADE

Senator **Hart**. What will the per-aircraft cost of the F-14 upgrade be?

Mr. **Paisley**. The recurring flyaway cost of the 295 planned new F-14D aircraft is $29.7M based on fiscal year 1984 constant dollars.

A-6F

Senator **Hart**. What will the per aircraft cost of the A-6F be?

Mr. **Paisley**. The recurring flyaway cost for the 150 planned new A-6F aircraft is $20.7 million in fiscal year 1984 constant dollars.

M-60 TANK

Senator **Hart**. Is the Marine Corps considering the Israeli modifications to the M-60 tank in lieu of procuring the M-1?

General **Franklin**. The Marine Corps considered all appropriate alternatives for the future USMC main battle tank to include a product improved M-60 with Israeli-like or similar modifications. The Marine Corps Systems Acquisition Review Council (MSARC) concluded that the M1A1 was the best alternative that offered the most future growth potential.

Senator **Hart**. What cannon other than the 75 millimeter is the Marine Corps considering for the assault gun variant of the LAV?

General **Franklin**. The Marine Corps is considering developed cannons in the 60mm-90mm class with developed ammunition (both kinetic energy and high explosive). A request for proposal (RFP) for such cannons was issued by the Naval Surface Weapons Center (NSWC), Dahlgren on Feb. 25, 1985. Respondents to the RFP have 45 days to submit proposals. From proposals submitted, the Marine Corps shall select two cannons for further testing, of which one will eventually be selected to compete against the 75mm cannon now under development. A Marine Corps Systems Acquisition Review is scheduled for the 1st quarter, fiscal year 1987 to select a single cannon for turret integration into the LAV-Assault Gun vehicle.

QUESTIONS SUBMITTED BY SENATOR JOHN GLENN

RESEARCH AND DEVELOPMENT FOR DEEP-WATER MINES

Senator **Glenn**. Two weeks ago during testimony on the Navy's global requirements, I asked Admiral Lyons about the Navy's decision to terminate the Captor Program, which currently is the only deep water mine in Navy inventories. He responded that the Navy has several R&D efforts underway to develop new generation deep water mines.

Please describe the programs currently underway that are designed to field a new generation deep water mine?

Are any of these efforts nearing the point of full scale engineering development?

Given the state of the development efforts underway at the present, could any of them result in mines that would enter fleet inventories by 1990? By 1995?

What R&D programs are currently underway to continue to upgrade the capabilities of Captor?

Mr. **Paisley**. The Navy's New Generation Mine [NGM] Program is underway to identify specific mines needed to address the threat into the 21st century and to initiate actual development of these mines. A two-phase effort has been established to implement the NGM Program consisting of a requirements and technical assessment phase [deleted] and a contract initiation phase [deleted]. The [deleted] phase consists of a program to identify the types of mines required to address the projected threat and testing of different candidate sensors against targets incorporated into the specific mines recommended for development, identification of which is anticipated [deleted]. The [deleted] phase of the New Generation Mine Program will consists of establishment of contractual specifications and contractor selection for development. Technical investigation directed toward the specific mines recommended for development will also be conducted during this period.

A demonstration and validation [D&V] contract will be issued [deleted] for new generation mines. Full scale engineering development will not commence until [deleted].

The projected initial operational capability for new generation mines [deleted].

There are no current R&D programs that are specifically identified [deleted]. There is, however, an ongoing effort to test [deleted]. Although these tests involve examination of existing production equipment, results of the test could lead to R&D. Further, R&D ongoing within the New Generation Mine Program could conceivably be applicable [deleted]. Basically, the [deleted] mine meets or exceeds Navy requirements as presently designed.

SSN-21 NEW GENERATION SUBMARINE

Senator GLENN. The SSN-21 is a new generation attack submarine designed as a substantial improvement over the SSN-688 class. The SSN-21 is currently going to be built [deleted]. As a consequence, the SSN-21 will [deleted]. At the present, the Navy does not intend to build the SSN-21 [deleted] at least for the first flight of submarines.

Has the Navy examined the use [deleted] for the SSN-21?

Mr. PAISLEY. The Navy has an ongoing program to develop [deleted] for use in construction of submarines. The SSN-21 design is structured to use [deleted]. All internal components will be designed [deleted].

Senator GLENN. Would [deleted] give the SSN-21 submarine greater depth and operating flexibility?

Mr. PAISLEY. [Deleted] would permit the SSN-21 to increase its operating depth [deleted]. The increased operating envelope will permit greater operational flexibility.

Senator GLENN. How much more expensive would the SSN-21 be if constructed of [deleted].

Mr. PAISLEY. The unit cost to produce SSN-21 [deleted] would increase. However, the total increase in cost will not be accurately known until after the qualification and certification process is finalized.

Senator GLENN. How much of a delay would be caused by a decision to wait until [deleted] steel could be used in construction of the first SSN-21?

Mr. PAISLEY. The SSN-21 single sheet characteristics specify [deleted] is not part of the lead ship. To delay until [deleted] could be used would mean a slip in IOC of a vital part of our future defense force of from [deleted] years depending upon the additional funding available and the time that it would take for the [deleted] program to mature technically.

LETHALITY OF TORPEDOES

Senator GLENN. It is widely known that the Soviet Union builds [deleted] submarines. The purpose of [deleted] submarines is to improve their survival prospects if attacked by torpedoes.

Do [deleted] offer substantial survivability improvements?

Mr. PAISLEY. Double hull submarines offer some improvement in hull survivability.

Senator GLENN. Why don't we build [deleted] submarines?

Mr. PAISLEY. [Deleted.]

Senator GLENN. Will the new generation MK-50 torpedo be effective against [deleted] submarines?

Mr. PAISLEY. [Deleted.]

Senator GLENN. Is there any appreciable difference in capability between the MK-48 torpedo and the MK-50 torpedo, in terms of their lethality?

Mr. PAISLEY. [Deleted.]

[Whereupon, at 3:40 p.m., the subcommittee adjourned, subject to the call of the Chair.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 1986

THURSDAY, MARCH 14, 1985

U.S. SENATE,
SUBCOMMITTEE ON SEA POWER AND FORCE PROJECTION,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

NAVAL FORCES READINESS AND SUSTAINABILITY

The subcommittee met, pursuant to notice, at 10:06 a.m., in open session, in room SR-232A, Russell Senate Office Building, Senator William S. Cohen (chairman) presiding.

Present: Senator Cohen.

Staff present: Gordon G. Riggle and Mark B. Robinson, professional staff members; Russell C. Miller, research assistant; and Kathleen L. McGuire, staff assistant.

Also present: James H. Dykstra, assistant to Senator Cohen; Henry D. Sokolski, assistant to Senator Quayle; Jeffrey B. Subko, assistant to Senator Exon; and William S. Lind, assistant to Senator Hart.

OPENING STATEMENT BY SENATOR WILLIAM S. COHEN, CHAIRMAN

Senator COHEN. Good morning. Today we are going to receive testimony on the Navy's readiness and sustainability. This hearing is going to differ somewhat from our previous hearings in that we are going to review how the Navy has spent past funds, rather than looking at the planned fiscal 1986 spending levels.

On behalf of the entire subcommittee, let me welcome our witnesses today. Rear Admiral Brown is the Director of the Strike and Amphibious Warfare Division [OP-954]. Commodore Clexton is the Director, Total Force and Fleet Operations Division [OP-64]. We appreciate seeing you again after having had a pleasant visit to the U.S.S. *Eisenhower.*

In addition, we have Commodore Sharp, who is the Director of Program Resource Appraisal Office [OP-91]; and Commodore Webb is Director of Materiel Division [OP-41], all from the Office of Chief of Naval Operations.

Gentlemen, last year there was some debate over whether increased defense spending was producing higher levels of readiness and combat capability. Again this year, people are understandably asking, what have we gotten for the money we are spending? And I would expect your remarks to give us a sense of the progress we have made, as well as help the committee make some informed decisions in fiscal 1986 WPN and OPN programs.

And I assume all of you have read the column in the Wall Street Journal this morning and will feel free to comment on some of the allegations, misguided as they appear to have been, that could be rebutted by the experts in the field.

Admiral Brown, will you begin.

Admiral Brown. Yes, sir.

STATEMENT OF REAR ADM. THOMAS F. BROWN III, USN, DIRECTOR, STRIKE AND AMPHIBIOUS WARFARE DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS, ACCOMPANIED BY COMMODORE GRANT A. SHARP, USN, DIRECTOR, PROGRAM RESOURCE APPRAISAL OFFICE, OFFICE OF THE CHIEF OF NAVAL OPERATIONS; COMMODORE CARL R. WEBB, USN, DIRECTOR, MATERIEL DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS; AND COMMODORE EDWARD W. CLEXTON, JR., USN, DIRECTOR, TOTAL FORCE AND FLEET OPERATIONS DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Admiral Brown. Thank you very much, Mr. Chairman. My introductory remarks pretty much parallel what you just had to say.

I would just say a little bit about the experience level of some of our panel members. Commodore Sharp just recently came to Washington as Chief of Staff of the 6th Fleet, and prior to that was a destroyer squadron commander. Of course, you know Commodore Clexton was recently the CO of the U.S.S. *Eisenhower*. And I have recently come back last summer after commanding the battle forces in the Pacific, and prior to that I was the CO of the U.S.S. *Midway* and others. So we have recent fleet experience, so we can comment, as you requested, on the trends, the actual trends out in the fleet.

We have, to introduce our session today, Commodore Clexton, who has prepared a presentation to show you the trends in readiness and sustainability, and after he finishes we will be available, all of us, for questions.

Commodore Clexton. Thank you.

Mr. Chairman, it is my pleasure to meet you again and to be able to give the status report for the Navy on readiness and sustainability over the past few years.

The article you referred to is rather timely, because I am going to address most of the issues that are in there—or at least many of them—from the Navy's standpoint.

I will start by just reminding you that we, the Navy, are spread throughout the world.

THE WORLD
DEPLOYMENT OF NAVAL FORCES

This world chart shows that every day we have carrier battle forces spread from the Pacific through the Indian Ocean and the Persian Gulf, through the Mediterranean into the Atlantic, both seaboards, the Atlantic and the Pacific, the Caribbean, and throughout the world, and we stay there every day of the year.

Because of our forward deployed posture we have to be ready all the time. Readiness to us is the actual status of our forces today in our ships and in our squadrons. We are on the edge. We are on the forward edge. Not only do we have to be ready this day, but we have to be able to be sustained and be able to stay there and go to battle if that is what is necessary.

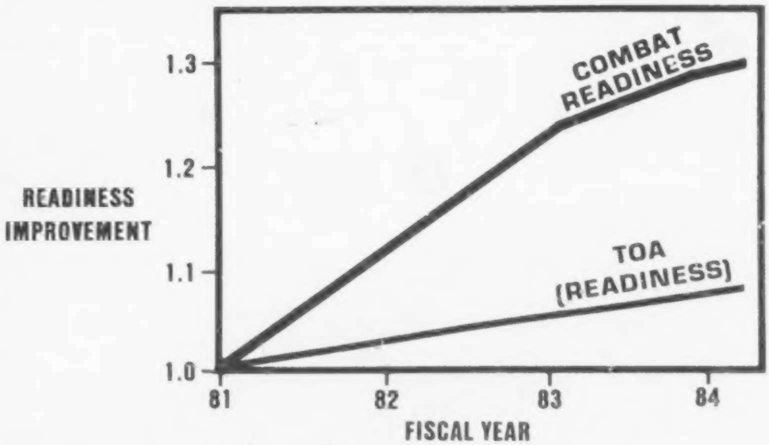
As such, we provide our Nation with the most flexible deterrent available, and we find ourselves frequently responding to crises or conflicts as they come up. As you probably well know, a week ago, the *Ike* was pulled out of port in the western Med because of possible turmoil in the eastern Mediterranean and today is at sea, on alert, having curtailed its port visit.

Likewise shortly after you were on the *Ike* we went to sea, and we were in 1983, at sea in the central and eastern Med, north of Libya, Egypt, and off Lebanon, as part of the peacekeeping force for 93 days continuous. After the bombing of the Marine barracks in Lebanon, we were back at sea for another 40 days continuous. We do that to our ships around the world frequently as the need arises. What I have relayed is just one ship's experience in the last 2 years.

The point is that we have to have the right number and type of trained people. We have to have the right number and types of ships and aircraft squadrons to provide the flexibility for our Nation. We have to have the munitions in the magazines, the spare parts on the shelves, the fuel available, and all the support equipment, and we have to have it every day. That is readiness for us and it is also sustainability.

I would like to show you and and tell you that the fleet is more ready today than it has been in years and years. We can answer the question "What can you show, Navy, for the money invested over the past few years?"

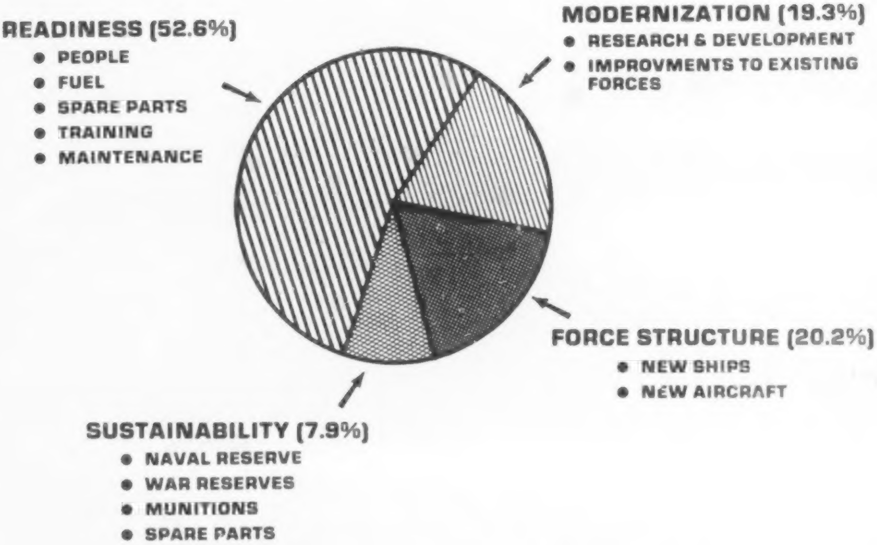
IMPROVED READINESS
SHIPS & AIRCRAFT SQUADRONS



READINESS IMPROVEMENTS OVER TIME

I have collated readiness data for all types of ships, aircraft squadrons, and submarines, and plotted it with what has been about a 5-percent annual growth in our readiness account over the same period of time, 1981 to 1984, to show you the combat readiness improvements that we have enjoyed over that period.

FY 86 NAVY BUDGET SUBMISSION



TOTAL OBLIGATION AUTHORITY NAVY

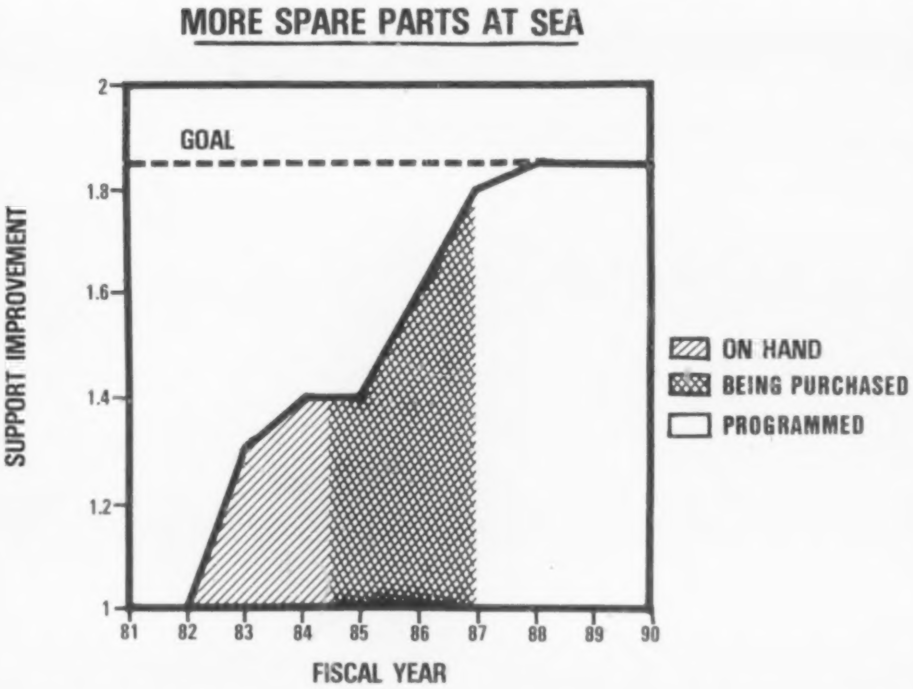
This shows the 1986 budget submission, and that 52.6 percent of the total obligational authority [TOA] has gone into the readiness account. That is down just a percent from last year, so it is about the same. In the sustainability accounts, we show a 2-percent increase over last year to 8 percent of our total TOA.

In the readiness accounts are the funds for people, for the training of those people, for fuel, and for the maintenance of our ships and aircraft. It also includes the spare parts that are in the bins on the ships in a forward deployed status.

In the sustainability area, we include the maintenance of our naval reserves, munitions, of which your committee is responsible for several, and spare parts. These are the back home spare parts in the supply center.

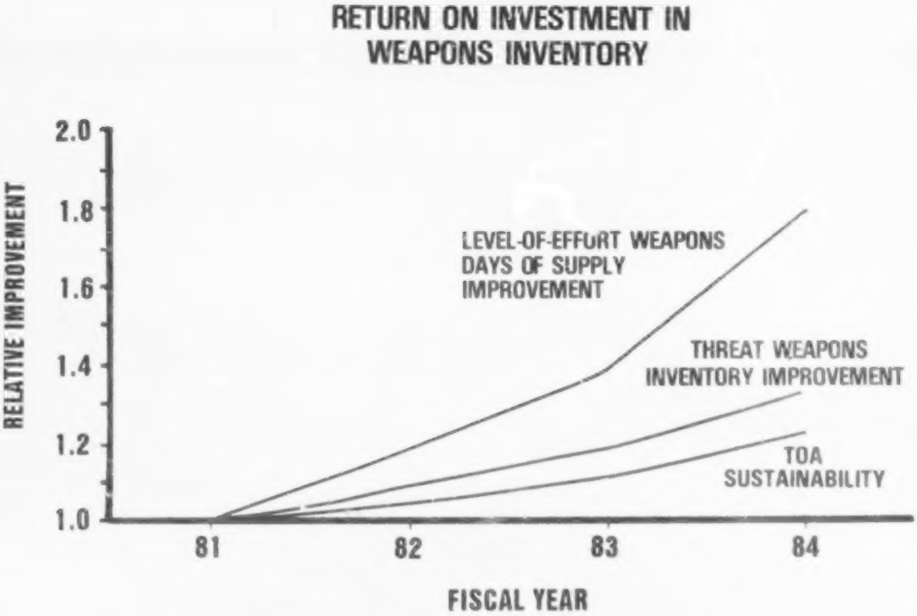
I think you can clearly see the payoff in readiness for the money invested over that period of time. Also the money invested in sustainability is staying power, and your subcommittee has played a significant role in improving that staying power.

SPARE PARTS AT-SEA IMPROVEMENTS 1981–84



I would like to show next some relative figures on spare parts and munitions.

WEAPONS INVENTORY IMPROVEMENTS 1981–84



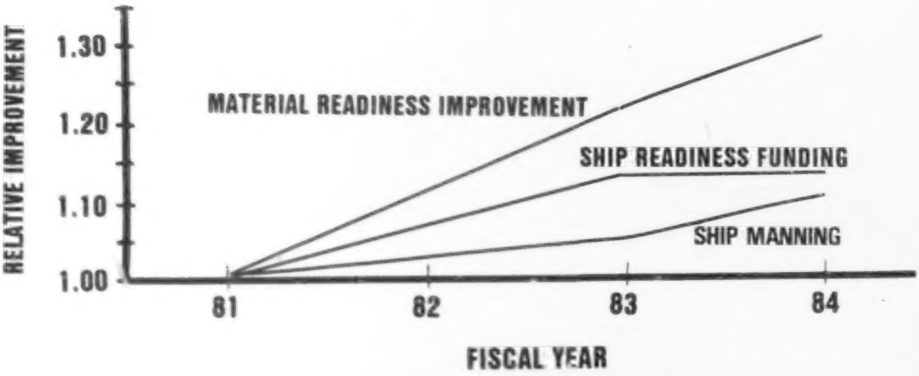
The spare parts viewgraph shows aviation spare parts, but others would be similar. The left hatchmark area is what has already been procured and is on hand. The middle shows what is in the process of being bought or programmed, and the last few years are still ahead of us.

On the munitions viewgraph you can see the increase in our obligation authority for sustainability, and on top of it, the improvements made in munition inventories in the magazines. The two lines depict the two ways we classify munitions—level-of-effort weapons and threat weapons. Threat weapons are the more sophisticated weapons; the missiles that you have in your WPN account. Level-of-effort weapons are bullets and bombs—some of which you have in your OPN account.

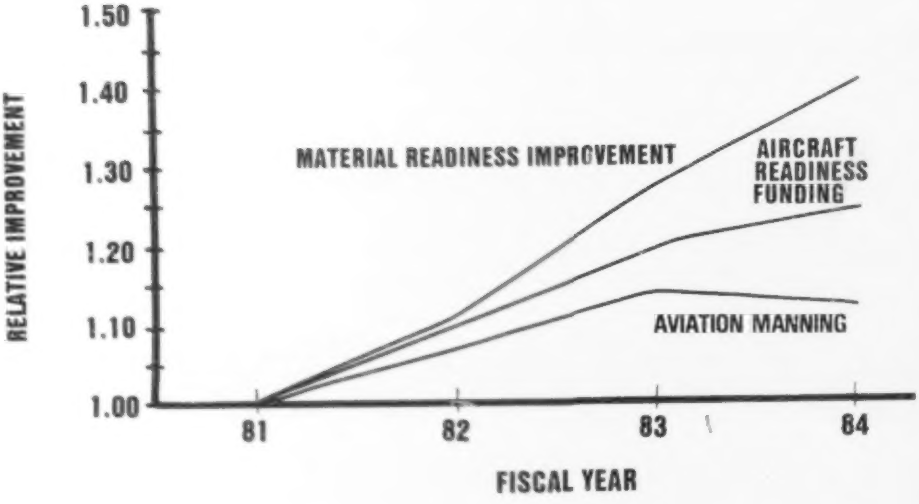
If you note, the starting point for the charts is in 1981. I am not sure, Mr. Chairman, if you toured the magazines on the U.S.S. *Eisenhower* when you were aboard, but, if you did, you would remember we had a fair amount of room to walk around in, because the magazines were relatively empty. We have, over these years, had the opportunity to work those magazines back to where they are almost full today, with *Ike* in a full-forward deployed status.

Mr. Chairman, as I was the commanding officer of that ship for the entire period the chart covers, I can tell you I watched readiness improve every day and every month over this period. The personnel readiness improved greatly, the aircraft availability improvements were dramatic, the ship systems availability improvements followed the improvements in personnel manning. I saw continual improvements across the board, every month, for 36 months.

I was somewhat confused to find newspaper articles or whatever from back here, in Washington, saying that we were not ready—that things were not getting better, because, as a commanding officer of a front-line deployed unit, I could vividly see the improvements. And it was not just my ship; it was all of the ships that were with me through that entire period.



RETURN ON INVESTMENT IN MATERIAL READINESS SHIPS



RETURN ON INVESTMENT IN MATERIAL READINESS AVIATION SQUADRONS

These two viewgraphs show very nicely how the material readiness of our ships and squadrons has improved over the past 4 years and how these improvements are related to the improved manning readiness of these ships and squadrons.

It is a good story for Navy. We do have a serious problem, however, that we are concerned with, and it has to do with the manning picture. We are about halfway to building our 600-ship Navy, but we are not halfway to being able to man that Navy. It is, this year, our most serious concern as we look ahead to maintaining good readiness for the future.

We have, in the last 3 years, taken cuts in our end strength request and we hear serious threats of that being the case again this year. These viewgraphs show clearly that the relationship between people and readiness is very direct.

We feel that people are as integral to readiness as is the hardware. We can prove that. We feel that the decision to provide the manpower was implicit in the decision to provide the hardware. Failure to provide that manpower at this juncture jeopardizes too much. It jeopardizes the introduction of the new systems, the maintenance and operations of them, and the efficiency of them, and we are sure it will ultimately affect readiness in the future.

There are clearly ties between personnel readiness and equipment maintainability. In the case of ships, the improvement in material readiness is measured by the absence of casualties. It is a measurement of serious casualties that did not happen on ships in those years relative to the years before because of the improvements in personnel readiness.

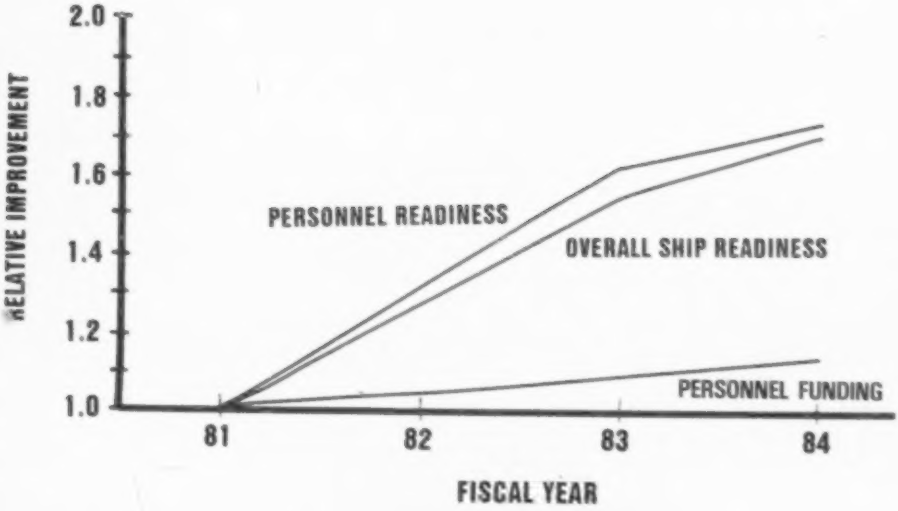
In the case of squadrons and airplanes, the improvement in material readiness is measured by how many airplanes were up and ready each day, in each carrier around the world, day by day. The improvements you see followed just as the manning picture in those squadrons improved.

In 1981 manning was our most serious problem. It was not lack of weapons, which was a problem; it was not lack of fuel or lack of parts, which all were problems but not as serious as the personnel. We just did not have enough of the right kind of people. You have heard about the 22,000 petty officer shortfall, I am sure, from those days.

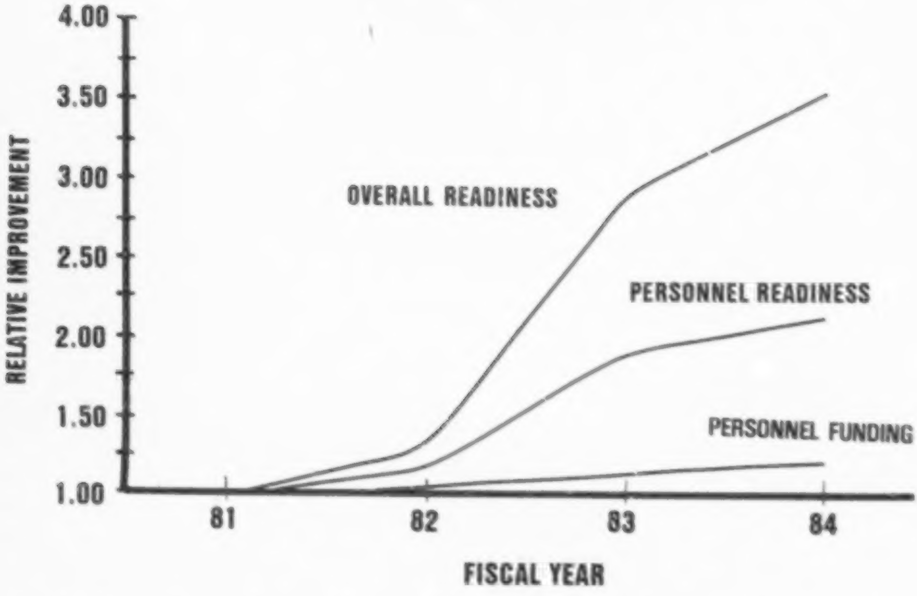
In fact, in 1981, 13 percent of our ships and 25 percent of our squadrons reported themselves not ready, not combat ready, from personnel degradations alone. Today less than 1 percent of ships or aircraft squadrons report themselves in that category.

It has been with congressional help, through what active duty end-strength increases we have received, and incentives, such as sea pay, that have helped provide these improvements in manning along with the best retention and recruiting that we have had in history over the past few years.

RETURN ON INVESTMENT IN SHIPBOARD PERSONNEL



RETURN ON INVESTMENT IN AIRCRAFT PERSONNEL



We have been manning our ships and our squadrons of late to their allowance, rather than keeping them degraded. The overall readiness has improved considerably as you can see on the viewgraph.

This is not materiel readiness. This is overall ship and squadron readiness as personnel readiness has been improving over the period of time, and there is an obvious correlation as you can see.

There is a limit, however. The lines cannot go up forever. In fact, we are probably at the right point. We cannot do better than recruiting our goals every month. We cannot, probably, improve that much in the retention area, because retention is currently as good as it has ever been. Incentives can only go so far.

There is a price we have been paying and the price is the drawdown of our personnel ashore and the support they provide. It is not so quickly noticeable in the data to show how a drawdown in personnel ashore in the support facilities eventually affects the fleet, but we know that we are on the verge.

If we continue the manpower growth constraints that we have been experiencing over the last few years, we will have a 15,000 man shortfall by the end of this decade, and that will take us right back into the spiral we experienced in the late seventies, where personnel readiness was down and consequently overall ship and squadron readiness, Navy readiness was down.

SEAPOWER SUBCOMMITTEE
R AND S ITEMS

STANDARD MISSILE 1 MR
STANDARD MISSILE 2 MR
STANDARD MISSILE 2 ER
ROLLING AIRFRAME MISSILE (RAM)
MK 48 ADCAP TORPEDO
MK 46 TORPEDO
WPN SPARES AND REPAIR PARTS
SSQ 53 SONOBOUY
SSQ 77 SONOBOUY
5"/54 GUN AMMUNITION
5 INCH GUIDED MISSILE PROJECTILE
16 INCH GUN AMMUNITION
CIWS AMMUNITION
76MM GUN AMMUNITION
ANTI-SHIP MISSILE DECOY
QUICKSTRIKE MINE
OPN SPARES AND REPAIR PARTS
SHIPBOARD COUNTERMEASURES

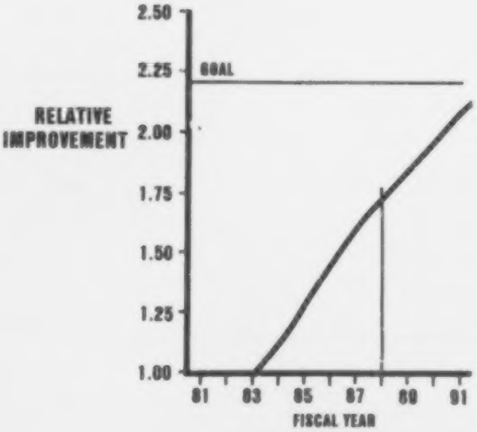
TOTAL 3016.8 (MILLIONS)

I will now show you some of the line items that are within the budget.

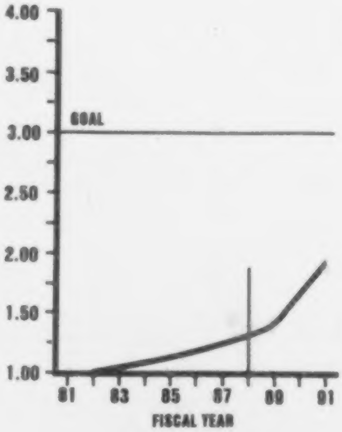
The shortages we had in repair parts and ordnance have not been totally alleviated, but we have started to restock the supply bins and put weapons back in the magazines. We still very much need your support in the 1986 budget and beyond to get back up to the necessary levels.

The current shortages are a direct result of inadequate funding in the seventies. Four years ago we could not fill the magazines of the ships even once, much less replenish them in a combat situation. We could not even fill them once.

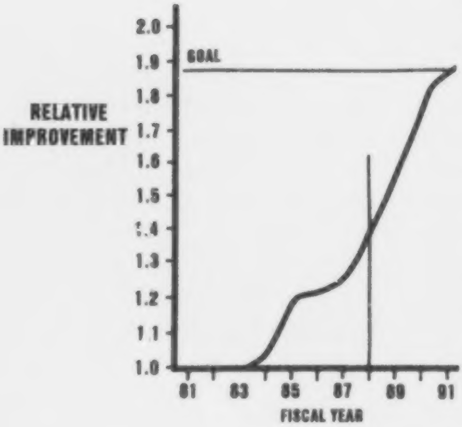
MK-46 TORPEDO



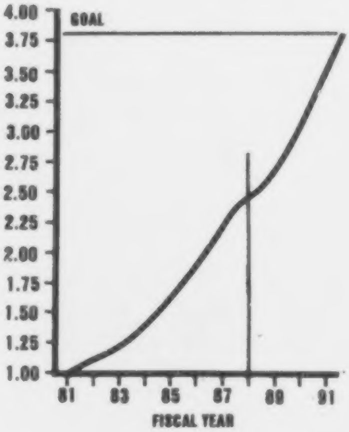
MK-48 TORPEDO



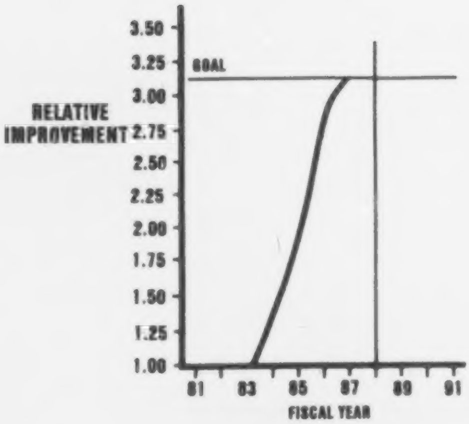
SM 1/2 ER



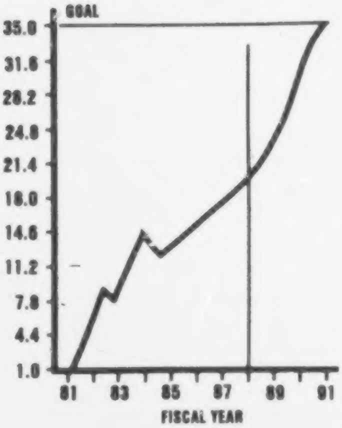
SM 1/2 MR



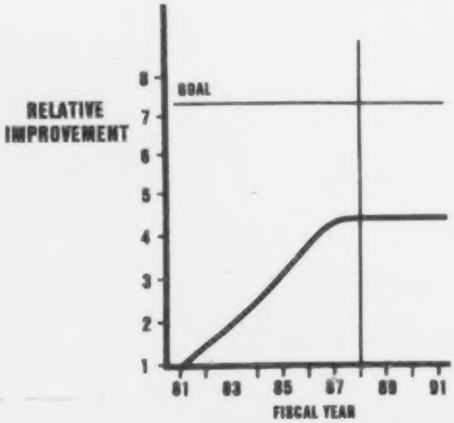
SONOBUOYS



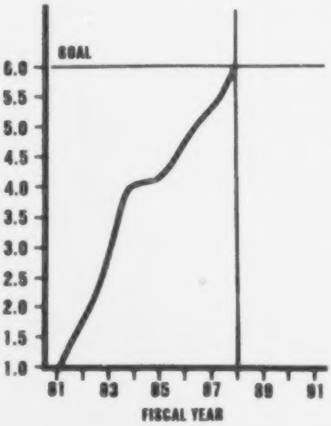
CIWS ROUNDS



CAPTOR MINES



SHIP COUNTERMEASURES



As you look at these viewgraphs you will notice a timelag. It takes us 1 or 2 years to get parts contracted and eventually into the bins, and oftentimes 2 to 3 years to get munitions, particularly the more sophisticated ones, from contract and eventually into the magazines.

Where the charts start in 1981 you see that relative improvements do not even start until 1983 because of the timelag between initial contracting and arrival in ships magazines.

There has been as much as 5 to 60 percent improvement in some accounts since 1981. Overall, the WPN account request this year is for $5.6 billion. That is considerable growth over the 1985 budget for Navy. Seventy-one percent of it is in missiles and torpedoes, of which almost half is yours, or $2.1 billion.

This increase in our procurement request in 1986 reflects our commitment, and we believe the determination of the Congress in recent years, to meet our munitions sustainability requirements along with attaining the 600-ship Navy and doing it within this decade.

There is more to it than just buying more ammunition. We must and we are taking advantage of some of the things that we can take advantage of when we increase these outlays. For instance, I am talking about dual sourcing, I am talking about competition—I am talking about lesser unit costs for a higher unit buy.

In the case of the Standard missile, in the 1986 budget, we are showing a 14-percent reduction in unit cost for the extended range version and an 11-percent reduction in the medium range Standard missile unit cost. These improvements stem from better management, reforms and initiatives and, as I said, better competition and multiyear contracts. We are buying more, yes, but are taking advantage of these business initiatives.

In the case of multiyear procurement the Mark 46 torpedo and the Standard missile are included in the 1986 budget request. We are also competing the Phoenix and Sparrow missiles. They are air-to-air missiles and not under your cognizance, but the RAM [Rolling Airframe Missile], which is a new start, and the Mark 48 advanced capabilities [ADCAP] torpedo, both of which are under your cognizance, will be competed. It is Navy policy at this point to second source all air-to-air and surface-to-air missiles in the future.

Besides the more sophisticated weapons in the WPN accounts under your cognizance, you also have $900 million of $1.2 billion in munitions in the other procurement, Navy, or OPN account. This account includes most of our gun ammo, expendable countermeasures, sonobuoys, the close-in weapons system [CIWS] rounds, and the considerable weapons support equipment. We are also ramping some of this ammo up, and you have a great deal of ammo in that account.

In overall munitions readiness from 1981 through 1986 budgets, we will have increased our sustainability accounts by 35 percent. Continued support is necessary this year and beyond to attain our needed objectives.

I hope I have been able to show you, Mr. Chairman, the improvements that we have seen over the past 4 years in our ships, submarines, and aircraft squadrons. The improved readiness is a direct reflection on the resolve of the Congress and the Navy to correct the shortcomings of the past and to ensure that our naval forces that are out there on the forward edge are ready today and will remain ready to stay and fight if necessary.

We do need your continued emphasis to maintain the readiness picture that we enjoy today to man this Navy as it grows, and to ensure that we continue to hold the spare parts and the munitions on the shelves and in the magazines.

I am grateful to you for allowing me to give this readiness and sustainability review for you today. Our ability to carry out our mission is greater now than it has been at any time since World War II. The morale is high, the personnel we have on those ships at sea are super, and they deserve proper treatment for the sacrifices they make when they are away from home as much as 60 percent of the time.

We believe your investment in the Navy readiness and sustainability accounts will pay great dividends for the U.S. Navy and the United States in the future.

Thank you.

Senator **COHEN**. Thank you very much, Commodore.

I want to ask just a couple of questions and then I am going to go into a closed executive session, since some of the answers you might give would be of a classified nature. But let me just point to the Wall Street Journal article very quickly.

Senator Grassley made the statement that, despite a constant dollar 4-year budget increase of 75 percent over that of the Carter administration, 11 percent fewer airplanes were procured. Would you care to respond to that? Why is that so?

Commodore **CLEXTON**. Eleven percent fewer aircraft were procured? I do not believe it.

Admiral **BROWN**. Mr. Chairman, I do not know if that fact is accurate or not. I do not have that. But I cannot deny the fact that things are costing more now than they did 6 years ago.

[Additional information follows:]

NAVY AIRCRAFT PROCUREMENT

Comparing Navy aircraft procured during the Carter Administration (fiscal 77-fiscal 80) with those procured during the first four years of the Reagan Administration (fiscal 81-fiscal 84) yields the following results. The total constant dollars spent on all types of Navy aircraft increased by 55% from the first four year period to the second. For that dollar increase, the total number of aircraft bought by the Navy increased by 62%, from 635 to 1026. Looking only at category 1 (combat) aircraft, the total constant dollar investment increased by 56%, while the number of combat aircraft purchased increased by 62%, from 451 during the Carter Administration to 740 during the first term of the Reagan Administration.

Admiral **BROWN**. The inflation rate that we sustained a few years ago, before it started to come down to what it is today, means that the same airplane in 1986 dollars is significantly higher than it was at that time. And so, with any given number of dollars you are going to be able to buy fewer things.

Senator **COHEN**. What about Navy ship construction? Did major surface combatant procurement decrease 17 percent from the Carter years, despite a 47-percent increase in funds?

Commodore **SHARP**. I am Commodore Sharp, Director of the Program Resources Appraisal Division, Senator.

My information reflects that from the period 1978 to 1981, 17 major combatants were authorized. In the period 1982 to 1985 there were 31 major combatants authorized, which represents a 46-percent increase for 1982 to 1985 period over the 1978 to 1981 period.

In total ships, there were 66 ships authorized from 1978 to 1981 and there were 89 ships authorized from fiscal year 1982 to 1985. This represents for the fiscal year 1982 to 1985 period a 35-percent increase over the 1978 to 1981 period.

Senator **COHEN**. How do you define "major combatant"? My understanding is, for example, that during the Carter years we were really accelerating the frigate construction program, which has now been phased down, and that we are moving to the much higher performance capability of Aegis cruisers and destroyers, of which we may have fewer, but hopefully more capable, ships.

I am wondering what would be your definition, in the figures you gave me, of major combatants?

Commodore **Sharp**. Yes, sir. My definition of major combatants includes the Aegis cruisers, the *Los Angeles*-class SSN-688 submarines, the nuclear-powered carriers, the *Spruance*-class destroyers, the *Kidd*-class guided missile destroyers, the battleships, and the *Arleigh Burke*-class guided missile destroyers.

Senator **Cohen**. You see, in Senator Grassley's statement, "major surface combatants." So I think he would probably take out the submarines. And would that affect your statement today?

Commodore **Sharp**. Yes, sir, that would affect it.

Senator **Cohen**. I will try to get more detail on exactly what he has included, because if he has included the frigate program that certainly would alter the statistics somewhat. They could be rather misleading, in terms of capability, and numbers, and it would be good to know whether he calls a frigate a major surface combatant.

Commodore **Clexton**. Mr. Chairman, one of the charts that I showed you was almost a direct addressal of the comment about FMC [fully mission capable] rates in Senator Grassley's article. We have shown significant improvements in FMC rates. In fact, I have a CBO study that also shows that; it shows Navy FMC rates improving over the period. And yet, Senator Grassley's article says there have not been any improvements. He does not differentiate between Army, Navy, or Air Force so I am not sure where he got his data.

Senator **Cohen**. He also indicates that Navy quarterly steaming days per ship have risen only slightly, from 32.4 days in fiscal 1980 to 34.9 days in fiscal 1984, and that Navy monthly flying hours per crew have fallen from 24.2 hours to 23.7 in fiscal 1984.

Do you have any comment about that?

Admiral **Brown**. Once again, sir, we will try and verify the accuracy of those figures. I cannot attest to whether they are accurate or not.

But the way to improve readiness and sustainability is not necessarily to go and steam our ships more. As a matter of fact, we may be steaming our ships just about the right amount right now.

[The information follows:]

Average steaming days per ship per quarter increased from 32.4 days in FY-80 to 35.8 days in FY-84. The FY-84 monthly flying hours per crew were 24.6.

Senator **Cohen**. I think we are steaming them a bit too much, as a matter of fact. I think we are operating at a tempo which is too high, but we are doing it for political reasons rather than military reasons, and that is another matter.

Admiral **Brown**. Yes, sir; that is another matter. But your observation, in my opinion, is accurate. So it might be that he has his argument reversed, is what you are saying, and I agree with that.

Senator **Cohen**. I will declare the public session closed and go into executive session so we can explore this in greater detail. Let us see if we can clear the room. The subcommittee will be in recess while the room is cleared.

[Whereupon, at 10:34 a.m., the subcommittee was recessed, to reconvene immediately in executive session.]

EXECUTIVE SESSION

Senator COHEN. Gentlemen, I decided to go into this scheduled closed session now because some of the questions I want to ask you can be answered in open session, but some perhaps not. I was made aware of certain individuals present in the audience who had more than a passing interest in some of your answers. And so, rather than go through it piecemeal, I thought we would have a more complete discussion here.

A number of the charts you have shown indicate that we are approaching our sustainability goals. I guess the question is, how do you set the goals? What do you use as a guideline to set up these goals and how confident are you that they really reflect combat forces you would need during time of war?

I do not have any familiarity with that.

Admiral BROWN. Yes, sir; I would like to address that question and tell you that we have a process called the NNOR process. That stands for non-nuclear ordnance requirements. And it is a combination of models that are used to determine our requirements for two kinds of ordnance: threat ordnance and another category which we refer to as level of effort ordnance.

Generally speaking, the threat munitions, the threat ordnance, are the more expensive things like air-to-air missiles, surface-to-air missiles, antiship missiles, and ASW weapons. They are all relatively expensive but they are defined to go against a target base which is finite, a limited number of targets.

The level of effort examples are naval gun ammunition, air-to-ground, air-delivered ground attack munitions, air-to-ground missiles, and rockets, generally speaking ground attack munitions. They are different from threat ordnance in that the target base is virtually unlimited. In other words, there is a vast number of trucks, armored vehicles, hardened pillboxes and those kinds of things. There is a large target base, which is how we separate these two kinds of ordnance out.

Now, over the years this process has mainly been accommodated in our logistics branch of the Navy. A year or so ago—as a matter of fact, it was after Commodore Webb came into the building about 2 years ago, and he was responsible for this process, and because of his efforts and others—it was determined that it would probably be better to supervise and oversee this process with people with recent operational background and put the operational input in, rather than just have the logisticians looking at it from a logistics point of view.

And so a little less than a year ago, sir, this process was transferred from OP–04, the logistics division, into OP–095, the naval warfare division. I think Vice Admiral Baggett briefed you previously. He is the Director of Naval Warfare, and I work for him as the Director of Strike and Amphibious Warfare.

So that process was brought into OP–954 and I now have a civilian who continues to work that process, as well as a Navy and a Marine Corps officer.

Senator COHEN. What I am getting at is, you say you have a finite number of targets, and I assume you make certain assumptions as to how much is required in each category for air-to-air and air-to-surface and so forth?

Admiral **Brown**. Yes, sir. And in the threat ordnance, our goals are set to have enough ordnance to neutralize the threat.

Senator **Cohen**. OK, but the threat keeps expanding.

Admiral **Brown**. If the threat expands, the requirement will expand, that is right. The inputs to the threat change from year to year, but one is, what is the threat, how many targets are there out there next year?

How about our friendly forces? How many Harpoon shooters do we have? How many ships that can shoot Harpoons? How many airplanes do we have that can fire Sidewinders, Phoenix, and this sort of thing? So that is a factor.

And an additional factor includes specific things which vary from weapon to weapon; what is the effectiveness of the weapon? What is the probability of the kill? What is your depth of fire, what is your salvo? Are you going to fire two and then look or are you going to fire one, look, and then fire another?

And these inputs are the inputs that go into the threat model. Now, we get outputs and we call one a planning objective and the other a program objective. The planning objective requirement would be [deleted] confidence level that no firing ship or combatant ship is going to run out of the threat weapons that he needs. The programming objective is [deleted] confidence level that no shooter is going to run out before the threat is neutralized.

And these graphs are based upon a programming level of [deleted] and that is how these goals are set for threat weapons.

Senator **Cohen**. And what happens if there is a variance between your [deleted].

Admiral **Brown**. [Deleted] and when you see those things tracking up and we get there, we will be at our programming objective, and that is [deleted] confidence level. We are not there yet in a lot of our weapons, but we need—that is one of the things we are asking and we are here for—we have got some momentum going. When you see the graph and it shows, the one graph, what we have purchased, what we have already, what we have bought and what is in the bin, and then we have another group of what we have purchased, we have paid for, you have budgeted for, but it is not in the fleet yet.

And then the other blank spot under the graph is what we still have yet to do.

Does that answer your question?

Senator **Cohen**. Well, part of it. What about the proper distribution in time of war? What sort of calculations do you make—what confidence levels do you have—for getting this distributed?

Admiral **Brown**. Yes, sir. The other factor with the weapons is this inventory level.

Senator **Cohen**. What I mean is, How do you work into your assumptions terrorist attacks, guerrilla activities, blowing up ammunition supply depots, and so forth? What are the calculations you make?

Admiral **Brown**. Sir, the inputs for that are the fact that we will have all of our combatants full, we will have all of our supply ships and our depots full, and we will have our pipeline full.

Senator **Cohen**. But again, I ask you what kind of assumptions do you make? Do you make any kind of calculation that you expect so many, let us say, supply ships to be sunk during the initial stages of a conflict? I just do not know what you factor in.

Admiral **Brown**. Yes, sir——

Senator **Cohen**. What kind of calculations do you make for attrition or losses in your supply, both on shore and at sea?

Admiral **Brown**. We do take into account attrition of our supply ships.

Senator **Cohen**. And what kind of numbers do you look at? I mean, is it a 10-percent attrition or 20 or 25? What do you base it on?

Admiral **Brown**. Sir, it is built into the model, and I cannot give you an exact specific answer like that of 5 or 10 percent. But it is implicit in the model and it is built into the model that some of our weapons will be lost at sea.

Senator **Cohen**. I guess what I would like to see on paper how that is done. Would you submit it for the record?

Admiral **Brown**. All right, sir. We will do that.

[The information follows:]

ATTRITION OR LOSSES IN SUPPLY

Attrition to Navy platforms is not explicitly quantified in the THREAT Model calculations. Sufficient ordnance requirements are computed to kill all of the assigned threat, and for logistics distribution of assets so that almost all units will have enough ordnance when and where required. This means that at the end of the war, after all targets have been killed, there will be a sizeable amount of ordnance left over, including some which has been lost due to attrition of Navy platforms. The amount of attrition losses or ordnance can not be estimated, since they will vary widely as a function of the exact conflict scenario. However, the logistics distribution part of the model serves as a measure of loss, and thus the THREAT Model can implicitly accommodate a significantly high level of attrition to Navy platforms.

Admiral **Brown**. I did not fully answer your question on the level of effort. I explained to you the threat and how we get the inventory for the threat ordnance. On the level of effort it is done differently, and that is the bombs, the rockets, and gun ammunition. And the way we figure, set our levels for that, is the days of ammunition available.

Right now, after we get our requirements, our defense guidance is to attain [deleted] of sustainability in all munitions by [deleted], and [deleted] by [deleted].

Senator **Cohen**. Do you program the funds for weapons so that you reach all of the goals by the end of the 5-year plan?

Admiral **Brown**. We will not reach all of our goals by the end of the 5-year plan.

Senator **Cohen**. Is that how you program the funds? Do you try to do that?

Admiral **Brown**. Yes, sir, we are trying to reach the defense guidance. We program to meet our defense guidance, which is [deleted].

Senator **Cohen**. Do you ever adjust those goals in order to keep open a production line for a particular weapon?

Admiral **Brown**. I do not know the answer to that.

Senator **Cohen**. To put it another way, are there production lines you want to keep open at all times for certain types of weapons, or do you program funds just for the 5-year plan and then start cutting back? I do not know what the mechanics are, how you program your funds and allocate them.

Commodore SHARP. Generally, we program toward the inventory objective plus 5 years of training consumption, and when we achieve it we would terminate a line. In many cases, as you know, modernization requirements exist or emerge and a new weapon will begin replacing an older weapon.

There are a few instances where we keep a line open in order to have what we call an existing production base.

Senator COHEN. For example, are there some items for which you want to make sure the production base is always, if not hot, relatively warm, because it takes too long to gear up production for that particular weapon during a time of emergency?

Admiral BROWN. Yes, sir, absolutely.

Commodore SHARP. Sidewinder is an example of that.

Senator COHEN. So there are a number of systems for which you want to make sure the production line remains at a relatively stable rate?

Admiral BROWN. Yes, sir. I think I misunderstood your question. The answer to that is definitely yes.

Senator COHEN. I may want to submit more questions for the record as I take a look at that.

But let me turn to some of the lessons learned. These apparently are based mostly on computer models.

Do you factor into those computer models actual experience, such as the British had in the Falklands or the Israelis had during the 1973–74 war, for example? I am told it was rather surprising how fast munitions were consumed during that 1973–74 conflict.

Do you take those experiences and factor them into the computer models? How does that work?

Admiral BROWN. Yes, sir. In the case, again, of the threat ordnance, we think we are buying enough, when we get to our inventory objective, that we have bought enough to neutralize the threat. And regardless of the lessons learned, let us say in the Bekaa Valley, we think that our model actually complements that particular data that we got in combat, because that is what we are buying for. We are buying based upon the effectiveness of the weapon and the number of targets we think we are going to come up against. We think we are buying enough to neutralize the threat.

I want to tell you, in the case of the Falklands, we learned some lessons that we had not planned on before, and that was the rate of false attacks using ASW weapons. There were about [deleted] ASW engagements by the British during the Falklands war. They fired, I believe, [deleted] separate pieces of ordnance, about [deleted] torpedoes, about [deleted] depth charges, and the remainder of [deleted] I believe, ASW mortars.

[Deleted] percent of those engagements were analyzed afterward as false attacks; that is, probably not contacts with a submarine. As a result of that, we factored into our model additional false attacks for ASW weapons.

Senator COHEN. Well, that tells you something. As I understand it, the Argentines had one submarine in the force at that time?

Admiral **Brown**. They had one submarine underway at that time; yes, sir.

Senator **Cohen**. And the British had all of how many attacks?

Admiral **Brown**. There were [deleted] engagements and most of them, the majority of them, ended up that there was not a submarine there. However, these engagements were in shallow water and there was a lot of marine life there, which complicated their problem. But it nevertheless illustrates the fact of how it is really going to be in wartime.

Senator **Cohen**. And so what you have done? How have you changed the computer model?

Admiral **Brown**. We have changed the input to the model to take into consideration for ASW weaponry.

Senator **Cohen**. You base it upon a figure, let us say, of [deleted] engagements? I mean, how do you work that number? You say that our forces will fire 100 percent too much or 50 percent too much, or that they will not take enough precaution? Or do you presume that in a time of actual conflict, one might shoot first at a submarine and ask questions later, and do not worry about the misses? As long as you have something, fire away out there. Maybe we do not want to take a chance and say it is a small whale, when in fact it really may be a new sub?

I mean, what would you do?

Admiral **Brown**. Sir, I think in actual combat we will shoot first and ask questions later. I think that is what happened.

And as I say, we have factored the specifics of the increased factor. I do not have, but I will take that and get back to you, on the actual specifics of the false attack input into the model.

[The information follows:]

FALKLANDS FALSE ASW ATTACKS/NNOR PROCESS

[Deleted.] The false attacks used in the THREAT Model have been false attack ratios; i.e., a number of false attacks for each valid attack. [Deleted.] The Falklands experience caused a reevaluation of these false attack ratios. Analyzing Falklands Factors and applying them worldwide, estimates of lightweight torpedo requirements [deleted]. These numbers were not accepted as valid for U.S. Navy worldwide requirements, [deleted]. As a compromise, [deleted]. We are continuing to evaluate the Falklands ASW experience to determine how best to adapt the data for U.S. Navy purposes.

Senator **Cohen**. How quickly do you adjust the computer model to take into account actual experience?

Admiral **Brown**. Yes, sir, and that was another part of the good question that you asked before that I did not get to. I wanted to tell you about how that process goes. And this is a new process. We did it for the first time last year. This is our second time around and we are refining this.

But I would like to tell you about the process that we are just going into now. The three people that work for me in OP–954 are, later on this month and on into the first few days of April, going out to visit the Commander in Chief of the Pacific Fleet, the Atlantic Fleet, and the Naval Forces, Europe to brief at the working level the results of our NNOR process last year, and discuss the inputs and the outputs with them to get them up to speed on getting started on this year's process.

In April, representatives of the various fleets will come back in here to the Pentagon, sir, and we will take a look at last year's results and all the inputs that we have put into the models, and factor military judgment and experience into the process. If it is appropriate, we will change the inputs, if we have learned that one weapon is no longer as effective as it was before, for example.

I would like to give you an example of that. After the Iranian situation, when the Soviets were able to get their hands on a Phoenix missile, the AIM-54 Alpha, we estimated that our probability of kill and the effectiveness of that missile would go down, that it would decrease. And so that upped the requirement for air-to-air missiles because the effectiveness was down.

One of your questions or your possible questions we were given asked why do the requirements jump around from time to time? And they in fact do, and this is one of the reasons.

As we buy the new AIM-54 Charlie missile, the probability of kill will go up and the requirement will go down somewhat.

So after we have this working group meeting and we get our inputs for this year set up, we will run those before two flag officer boards. A two-star flag board and a three-star, and we will brief these two groups. And I am a member of the two-star board and my boss, Admiral Baggett, is a member of the three-star board.

We will brief these boards and get their concurrence to make these changed inputs into the models. Then we will run the models, and then we will compile the output of all of these, and we will go back and brief the two-star flag level review board and the three-star flag level review board and get approval for this year's output, this year's requirements.

Then we will use those figures in next year's, fiscal year 1988 planning, programming, and budgeting.

Senator COHEN. Commodore Clexton, the Unified Commanders came in recently and they said they were concerned about war-stoppers, primarily the lack of munitions. Among the items that this subcommittee reviews, what do you consider to be war-stoppers? What are you most likely to run out of quickest that you need the most of?

Commodore CLEXTON. What were the CINC inputs, or what do we feel?

Senator COHEN. You.

Commodore CLEXTON. I am not sure I can answer that question for you officially. I think Commodore Webb might know, but I would suggest that we have [deleted].

Senator COHEN. As I recall, the Navy has made no request for increased funding for the sonobuoys this year. The request is down this year, is it not? And I was just wondering why there has been a decrease in the request for funding for sonobuoys.

Commodore CLEXTON. Unless we attained the objectives.

Senator COHEN. No, you have not.

Admiral BROWN. I do not know the specifics of what the CINC's said were the war-stoppers, but my opinion is that munitions are going to be—that this is what we are talking about—our number one war-stopper. And of course, it depends on the scenario, if you will pardon that expression, as to what we are going to run out of first.

But I would think that air-to-air missiles are going to be the things that we are going to run out of the quickest, and then ASW-related things, sonobuoys and torpedoes.

Senator **Cohen**. Do you have any numbers, for air-to-air missiles, torpedoes, ASW, and so forth, which show how many days supply and in which kinds of conflicts?

Commodore **Webb**. Mr. Chairman, we can submit that for the record and get you the details.

[The information follows:]

FORCE READINESS AND SUSTAINABILITY

The Navy measures munitions sustainability in terms of goals established by the Secretary of Defense (SECDEF). [Deleted.] Navy has programmed sufficient resources to attain these goals [deleted]. However, we do have some significant current shortages. The following table highlights the status of major items. [Deleted.]

Threat-Oriented	*Current Status*
Air-to-Air Missiles:	
Sparrow	[Deleted]
Sidewinder	[Deleted]
Phoenix	[Deleted]
ASW:	
MK46 Torpedo	[Deleted]
MK 48 Torpedo	[Deleted]
Surface Missile:	
Standard Missile SM-1/2 ER	[Deleted]
Standard Missile SM-1/2 MR	[Deleted]
Sea Sparrow (all variants)	[Deleted]
Mines:	
Quickstrike (TDD MK.57)	[Deleted]
Captor	[Deleted]
Other Munitions:	
Sonobuoys (SSQ 36, 41, 53, 57, 62 variants)	[Deleted]
Laser Guided Bombs	[Deleted]
Harm Missile	[Deleted]
TOW Missile	[Deleted]
76MM Gun Ammunition	[Deleted]
5″ 54 Gun Ammunition (Full Chg)	[Deleted]
5″ SAL GP	[Deleted]
16″/50 Gun Ammunition	[Deleted]

Senator **Cohen**. Nothing was mentioned about peacetime consumption. What are we doing in the way of training with munitions? I have been out to visit some of the ships and you are doing some wonderful things with simulators, but I do not think the sailors get quite the same experience operating with a simulator as they might with the real thing.

Admiral **Brown**. We have invested money in simulators, and I think that is the wise thing to do. But simulators only do so much for you as an aviator as you implied. When the simulators first came out big 15 years ago, the hope was that we could buy simulators and reduce flight time, and fuel consumption. But that is not the way it works out.

You need to fly just about what we are programming, 25 to 30 hours a pilot. But simulators complement the flight time and complement other things, and so one of the things we are doing is we are building a test range at Fallon, NV. I do not know if anybody has mentioned that to you, the so-called Strike University that we have built up there.

We have a tactical range. It is similar to the air combat maneuvering ranges that we have a number of in the country and overseas. We are building one and it will be able to evaluate our tactics, and also a part of that is a no-drop scoring range and target.

We also have captive-carry weapons, captive-carry Sidewinders and Walleyes, and we get, the troops get, practice loading and downloading those particular things. And so there is training value from that.

Of course we have weapons that are designed only for training. We have training bombs. They weigh about 27 pounds. They are relatively cheap. They simulate the trajectory of the bombs—the only thing they do not do is simulate the gross weight going off the catapult, but we do that with real bombs from time to time.

The answer to the question is that we are buying weapons for training, and we are also supplementing with simulators and I think we are all right in that particular area, Mr. Chairman.

Senator COHEN. And in sonobuoys as well?

Admiral BROWN. Sonobuoys——

Commodore SHARP. Mr. Chairman, if I could follow up on the sonobuoys. I have a chart here I would like to show you. [Chart deleted.]

This shows that our projected sonobuoy inventory approaches the goal very early. I think that is fiscal year 1987, and that includes peacetime training consumption.

Senator COHEN. Let me turn to C-rating reports now. Is there any way that you directly relate the C-ratings to actual budget accounts or programs? Is there a correlation between the ratings and the budget?

Commodore CLEXTON. Only in historical data like I showed you earlier. We can show the increase in readiness that we have obtained over a certain period of time coincident with an increase in funding. Otherwise there is no direct linkage in the planning process.

Senator COHEN. So there is no role that they play in terms of formulating the budget priorities?

Commodore CLEXTON. It would be like fifth and sixth order, in that if things are bad you would budget to fix them, but not the other way, except historically.

Senator COHEN. On the industrial mobilization base. We hear the words used quite frequently, but I would like to know more about your plans for buying weapons and fighting wars. Could we manufacture munitions soon enough and as quickly as they would be consumed in a so-called long war with the Soviet Union, if there is such a thing?

I mean, do you have a computer model for such a thing as a long war?

Admiral BROWN. As I explained to you before, this question does not really apply so much to the threat weapons, because if we attain our goals and meet our objectives in threat weapons, we will buy the number of weapons we think we need to neutralize the threat. And if we are right, it will not matter how long the war is because we will neutralize the threat and then it will be a question of whether they can build more targets before we can build more weapons. If we ever got into that sort of a contest, the people building the weapons should——

Senator COHEN. So far the Soviets have been doing a pretty good job of building more targets than we have been building munitions.

Admiral BROWN. I am just saying that with the threat model we hope to buy the weapons to neutralize the threat. However, sir, as I told you, in level of effort we are tracking toward getting a [deleted] sustainability by [deleted].

So if a long war were a 2-year war or something like this and you did not have that sort of lead time, then we would have a deficiency. We are trying to counter this with increasing our industrial base by things such as dual sourcing, which gives you another factory, another company that has the capability of producing.

And of course, we can expand out by going to a 7-day work week and a three-shift, 24-hour-day operation.

Senator COHEN. Could there be a delay caused by the Navy's need to test particular types of munitions before accepting them? Do you have any delay between production and delivery, assuming they can manufacture it?

Admiral BROWN. Yes, sir.

Senator COHEN. The question is, How long a delay is there?

Admiral BROWN. Yes, sir. This is one of the things that is illustrated in the graphs. When this administration came in 4 years ago, we were struggling with fiscal year 1983 as we are struggling to get ready for 1987 now. So the money that we spent in 1983 produced weapons that are being delivered now in 1985, for the most part.

Senator COHEN. So you have a 2-year delay between funding and delivery?

Admiral BROWN. It is about a 2-year delay. It varies from weapon to weapon, but it is an 18- to a 24-month delay on the average.

Senator COHEN. But we do not have a 2-year inventory to last us until we get the new deliveries, do we? I mean, what do you do when you have a 2-year time lag there?

Admiral BROWN. Well, we were behind, sir, but we are catching up.

Senator COHEN. Would you not run out of ammunition long before we catch up? In other words, if you have that kind of a delay before acceptance of particular munitions, the war is going to be long over by the time you get the process speeded up.

Admiral BROWN. I do not believe so. When we obtain our objectives, inventory objectives, then we should have, as I tried to explain before, we should have enough threat weapons to meet the threat. And after—on level of effort munitions—when we get to 1991, when we get to a [deleted] supply, we will continue manufacturing at an economic rate until we eventually achieve [deleted] of supply.

But that implies that we are behind. But I think the decisions made in the last 3 years or so are changing the trend. The trend was adverse before, but the trend is favorable now.

Senator COHEN. Commodore Sharp, when you answered the question about the sonobuoys and you showed the chart going up to the full complement we need by 1987; and you showed the Captor mine production leveling off at about half of the stated goal. And yet, there is no funding for the Captor mine in this year's budget.

Why have we decided to level off at half of what the goal is?

Commodore **Sharp**. [Deleted.]

Senator **Cohen**. So in other words, this chart should be redrawn to show that the goal is no longer the original goal? That now you have reached 100 percent of the inventory goal, if you cut it in half, because you are going to change your tactics? What you are saying, therefore, is you can achieve the full goal just by changing the goal itself.

Admiral **Brown**. [Deleted.]

Senator **Cohen**. You say "may." I mean there is no indication that they have changed their strategy.

Admiral **Brown**. [Deleted.]

And that is not the only explanation. It is also an affordability issue, Mr. Chairman. And the decision was made, looking at the total ASW threat and the total ASW problem and how best to attack it. The purchase of the Captors after fiscal year 1985 was lower in priority in comparison to the other ASW weapons and assets available.

Senator **Cohen**. You talked before about dual sourcing of munitions. Which munitions are you planning to dual source in the fiscal 1986 budget?

Commodore **Clexton**. In the 1986 budget, we were competing—two air-to-air missiles, the Phoenix and Sparrow. Then, under your cognizance, the Mark 48 advanced capability torpedo and the RAM missile.

Senator **Cohen**. The ADCAP is going to be second sourced?

Commodore **Clexton**. Yes, sir. We also intend to second source all missiles in the future. It is just a matter of timing as to which ones begin in what years.

Senator **Cohen**. Is there a minimum level of production you need in order to support two competitors for ADCAP?

Admiral **Brown**. Yes, sir, there is. There is a minimum level, and that is how you decide whether it is a cost effective point of view. Putting aside the industrial base and the advantage that gives you, there is a minimum number. I have a chart here which we were given yesterday on this subject.

It is sort of a moving target, sir, but the weapon that is the hardest—or the furthest along for dual sourcing, the weapons that are the furthest along are the Phoenix and ADCAP right now. And under close scrutiny is the RAM and the Standard missile at this time.

Senator **Cohen**. You are going to compete the Standard missile?

Admiral **Brown**. It is being evaluated right now, sir. The intention is to, but the final decision has not been made. This is what I am told.

Senator **Cohen**. When do you think that decision will be made?

Admiral **Brown**. I do not know the answer. Does anybody know? If not, we will take it for the record.

Sir, I will have to provide that for the record.

[The information follows:]

STANDARD MISSILE COMPETITION

We plan to conduct a solicitation so that the contractor proposals will be available to Navy by late FY 1985. As part of our evaluation we also will make a determination as to the economic advantages to be gained from second sourcing. If second sourcing is determined most advantageous to the Government we will award a contract to the contractor having the best overall proposal. A leader-follower arrangement will be utilized.

Senator **Cohen**. That is all I have. I have no further questions. And if the minority has some, we will submit them for the record.

[The questions with answers supplied follow:]

Questions Submitted by Senator Gary Hart

NAVY SUSTAINABILITY

Senator **Hart**. Have inventory goals for munitions been increased subsequent to the conclusion of the Falklands war, in particular for anti-aircraft missiles and antisubmarine ordnance? By how much in each case?

Admiral **Brown**. [Deleted.]

Senator **Hart**. In setting your inventory goals, what Pks did you assume for:

a. The Mark-48 torpedo?
b. The Mark-46 torpedo?
c. The Sparrow missile?
d. The Phoenix missile?
e. The various models of the Standard missile now being procured?

Admiral **Brown**. The range of Pks used in this year's nonnuclear ordnance requirements (NNOR) process are found on Attachment 1.

a. MK-48 TORPEDO (Read MOD-4/ADCAP):

ENVIRONMENT

Target [deleted.]
Countermeasures (50%) [deleted.]

b. MK-46 Torpedo (all used against submarines):
  Delivery System [deleted.]
  Pk [deleted.]
c. SPARROW Missile (AIM-7) [deleted.]
d. PHOENIX Missile (AIM-54) [deleted.]
e. STANDARD Missile (all threats) [deleted.]

MK 48 TORPEDO

Senator **Hart**. What capability currently exists for increasing the production rate of the MK 48 torpedo in wartime? What is the maximum rate of production that could be achieved in six months? In one year?

Commodore **Clexton**. Production facilities currently exist to produce 56 MK torpedoes a month. In six months production rate could be increased to approximately 36 units a month. In twelve months; 48 units a month. With priority commitment of raw material and people, our physical capability of 56 units a month could be achieved in the following year.

FUZE INVENTORY

Senator **Hart**. How adequate is the Navy's supply of fuzes for missile and torpedo warheads and for bombs?

Commodore **Clexton**. There is no shortage of fuzes for the current inventory of weapons.

FUZE AVERAGE AGE

Senator **Hart**. What is their average age?

Commodore **Clexton**. Missile fuzes are procured on a one for one basis with the missiles and are the same age as the missiles in which they are installed. The average age of MK-48 torpedo fuzes is [deleted] years. The average age of the M904 mechanical bomb fuze inventory is [deleted] years and the average age of the MK-344/376 electric bomb fuze inventory is [deleted] years.

FUZE EFFECTIVENESS

Senator HART. How confident are you about the effectiveness of these fuzes?

Commodore CLEXTON. The fuzes in the Navy inventory are considered to be very reliable except for the [deleted]. The Navy has started [deleted].

FUZE EFFECTIVENESS REPORTING

Senator HART. Do you systematically collect data that reflects fuze effectiveness from exercises where live ordnance is employed?

Commodore CLEXTON. Yes. The Navy has a formalized reporting process to gather information with respect to total weapon system effectiveness, including the fuze, for all live ordnance exercises.

QUESTIONS SUBMITTED BY SENATOR J. JAMES EXON

PRIORITY OF SUSTAINABILITY

Senator EXON. Admiral McDonald, CINCLANT, testified before this committee that "correcting ordnance deficiencies is (his) number one priority readiness and sustainability issue." He went on to say that "significant shortages in level of effort and air-to-air munitions still preclude fully loading all units to meet wartime requirements. Similar shortages exist with torpedoes, sonobuoys and gun ammunition."

Obviously, munitions sustainability lacked sufficient priority in the past. Does it have a high priority now?

Commodore SHARP. Munitions sustainability has dramatically improved during the Reagan Administration as a result of priority funding within the Navy's TOA. In the preceding decade, the Navy experienced severe munitions shortages. Over the last four years, however, ammunition and weapons funding has increased by more than 65 percent in real terms, reflecting the high priority assigned to munitions sustainability. Our current budget reflects continuation of this priority.

Senator EXON. This committee will be forced to make budget reductions. The Budget Committee mark would require a cut of $18 billion. The Navy's aircraft production rates are terribly inefficient now. Your flying hours and steaming hours are not something that can be pinched further. Can we afford to make cuts in munitions sustainability?

Commodore SHARP. Sustainability requirements are reviewed annually. Based on the FY-86 review, it is estimated that most sustainability shortfalls will be eliminated when weapons procured with FY-88 funds are delivered to the fleet, provided the Navy program is approved. The elimination of these shortfalls is a critical element in enabling the Navy to meet the threat of the 1990's and beyond. A slowdown in munitions procurements would cause serious delays in meeting sustainability objectives and slow the improvement of Navy warfighting capability.

Senator EXON. How high a priority does the Navy award to munitions sustainability in the event of budget reductions?

Commodore SHARP. Munitions sustainability funding has substantially increased since 1980, and the FY-86 budget request reflects the continuing need to correct critical sustainability shortfalls. Eliminating munitions deficiencies remains a high priority within the Navy's program, which is balanced to meet our critical warfighting needs.

BUDGET CUTS LAST YEAR IN SUSTAINABILITY STOCKS

Senator EXON. Last May when DOD submitted the May budget revision in order to meet the Rose Garden Compromise for a Defense spending cut, the Navy offered up cuts in the following items, among others:

MK-48 torpedoes, IIR Maverick missiles (delaying Navy procurement one year), AN/SSQ-53 sonobuoys, AN/SSQ-62 sonobuoys, and Hawk, Stinger, and TOW II missiles for the Marine Corps.

We have today:

69% of MK-48 torpedo requirements, approximately 40% of sonobuoy requirements, approximately 35% of air-to-air missile requirements.

Why did the Navy offer up cuts in those areas when you are so short of your requirements?

Commodore CLEXTON. The program reductions identified as a result of the Rose Garden compromise for Defense spending were based on criteria designed to minimize added risk to our future national security. As was stated last May, these reductions were intended solely to help accomplish a federal fiscal policy objective and did not signal any change in readiness requirements.

Senator EXON. How committed is the Navy to protecting these accounts in the face of budget reduction?

Commodore CLEXTON. The Navy will continue to improve its readiness and sustainability posture by procuring the maximum number of weapons and sonobuoys allowable within funding constraints. Funding reductions will only further delay the attainment of the Navy's readiness objectives.

BALANCE IN NAVY PROCUREMENT

Senator EXON. Secretary Lehman in his posture statement indicated that we will have 545 ships by the end of this fiscal year and have made commitments that will result in the 600 ship Navy by the beginning of the next decade.

I note that according to data provided by the Navy, by the end of FY 1985 funded delivery period (when all the weapons ordered through this fiscal year are delivered) we will have approximately 40% of our sonobuoy inventory, approximately 40% of our air-to-air missile inventory, less than 60% of our modern mine inventory.

How is it that we cannot get by with only 90% of our ship requirements, but we can live from day to day with only 40% of the munitions levels we think would be required to fight a war?

Commodore CLEXTON. Up to now it has been a matter of priority and timing. Initial programming was weighted to building force structure, whereas our emphasis of late has been shifting to provide the munitions for the expanded Navy. The 600 ship Navy will be in place by the end of the decade. It is estimated that most munitions shortfalls will be eliminated by that time with funds now being programmed.

MINE SHORTAGES

Senator EXON. What is being done to overcome mine shortages?

Commodore CLEXTON. With the exception of CAPTOR the Navy mine procurement plan is proceeding toward its originally planned inventory objective. Stockpile mines are being replaced with improved technology QUICKSTRIKE and Submarine Launched Mobile Mines (SLMM). Future mine requirements are under investigation as part of the New Generation Mine study which should culminate in a plan to meet the U.S. mining requirements into the year 2000 and beyond. With regard to CAPTOR procurement levels, a reexamination of strategic mining concepts, coupled with CAPTOR affordability led to a decision not to buy additional quantities of this weapon.

MINE STOCKPILE REQUIREMENTS

Senator EXON. How are mine stockpile requirements determined?

Admiral BROWN. Mine stockpile requirements are based on [deleted] that support general war plans. Three levels of requirements are utilized to identify total requirements. The first level includes [deleted] except by mines that might be available in logistic supply line. The second level [deleted] and the third level includes [deleted]. All minefield requirements are included in the Non-Nuclear minefield requirements are included in the Non-Nuclear Ordnance Requirements (NNOR) and are [deleted]. Reseeding requirements are based on intervals minimizing delivery attrition and mine expenditures. The Non Nuclear Ordnance Requirements are used as a basic for the development of mine requirements in the budget cycle.

EXERCISES INVOLVING THE FIRING OF LIVE WEAPONS

Senator EXON. Given the existing ammunition, missile, and torpedo inventory shortfalls, how satisfied is the Navy with the frequency of live firing exercises and the numbers of live weapons actually fired by fleet units?

Admiral BROWN. The Navy is not entirely satisfied with the amount of live firing training. Over the past two years, in an effort to build up our war reserve assets, we have reduced munitions expenditure for training. Peacetime training expenditure of non-nuclear ordnance is based on consideration of training and system operability requirements, weapon cost, cost-effective alternatives to live firing, and the condition of stockpiles. The level of live firings for training is based on maintaining the optimum balance between unit and individual combat readiness and the attainment of required sustainability goals.

Training expenditures are reviewed annually by the fleet commanders-in-chief with an eye to revision and updating. The next review of peacetime weapons expenditures will be held later this month. As the stockpiles improve, the recommended balance between stockpiling and training may shift to a greater expenditure of weapons, if that is the cost-effective way to improve fleet readiness.

Senator Exon. Are there any areas in which we cannot even meet the minimum requirements for practice firing?

Admiral Brown. The Navy is able to meet minimum requirements for practice firing in all areas.

BATTLESHIP REACTIVATION

Senator Exon. Since the battleships are of WW II design and have many items of equipment and machinery no longer available, does it not make sense to keep the fourth battleship available for the cannibalization of spare parts to keep the other three running?

Commodore Clexton. In the IOWA class battleship all major equipment end items can be supported by the original equipment manufacturers. A high degree of commonality with existing fleet equipments permit the Navy to adequately support the BB 61 at piece part level. Battleship maintenance is not significantly different from that of other fleet units. Therefore, using a valuable naval asset as the WISCONSIN for cannibalization is not justified.

SURFACE-TO-AIR MISSILE INVENTORY

Senator Exon. How close are we to achieving our required inventory of surface-to-air missiles?

Commodore Webb. The OSD directed war reserve surface-to-air missile objective for this Five Year Defense Plan is to accumulate sufficient assets-by [deleted]. The below table indicates our our end fiscal years 84, 85 and 86 delivery percentages to the OSD objective.

PERCENT ASSET TO OSD PROGRAM OBJECTIVES

	End FY 84 (1 Oct. 84)	End FY 85 deliveries	End FY 86 deliveries
Standard SM2ER	[Deleted.]		
Standard SM2MR			
Standard SM1MR			
Sea Sparrow (Improved) Point Defense			
Sea Sparrow (Basic Point Defense)			

Senator Exon. How are these inventory requirements determined?

Admiral Brown. The NNOR is the process for computing all Navy non-nuclear ordnance requirements. This begins with a working group meeting of action officers from throughout the Navy and Marine Corps. The working group reviews all of the previous years factors, assumptions and models and recommends changes for the current year. These input factors include friendly force levels and enemy threat, aircraft sortie and attrition rates, carrier deployment schedules, Marine Corps amphibious assault schedules, weapon effectiveness and firing doctrine, availability of replenishment of combatants, and many others. All of the recommended changes are then reviewed and approved by two flag-level boards. Upon approval of all inputs, the NNOR models are exercised to compute the requirements. There are two general types of the NNOR models. The THREAT model computes requirements for all threat oriented ordnance except naval mines which uses a separate model. There are five models for level of effort ordnance: air strike ordnance, Marine helicopter/OV-10 ordnance, naval gun ammunition, sonobuoys and expendable countermeasures. The results, with whatever adjustments are necessary, are presented to the flag boards for review and approval. The approved requirements then form the basis for all navy ordnance planning, programming and budgeting.

Senator Exon. How do our estimates compare to those the British expected and actually experienced in the Falklands campaign?

Admiral Brown. We have no information concerning weapons expenditures the British expected in the Falklands campaign. Secretary Lehman, in his testimony before the House Armed Services Committee on 3 February 1983, noted that "British surface-to-air missile systems like SEA DART and SEA WOLF . . . generally performed better than expected. But because their combatant ships lacked adequate 'last ditch' close-in weapons, the British were unable to knock down the remaining bombers reaching the fleet." British studies of the campaign indicated that the SAM systems knocked down a total of 21 Argentine aircraft.

Our inventory requirements are determined based on an OSD-directed order-of-battle against Wasaw Pact nations. Included in the calculations are the estimated contributions from U.S. allies, and the distribution of targets among various weapons system (e.g., Army, Navy, Air Force; submarines, carrier aviation, guns, surface-to-air missiles, mines, etc.) Recasting the calculations of the Non-nuclear Ordnance Requirements model to estimate weapons expenditures against a third-world nation, using the British task group as the principal friendly force, is not possible using our current methodology.

HARPOON ANTI-SHIP MISSILE INVENTORY

Senator Exon. How adequate are the existing inventories of air, sea and subsurface launched HARPOONS?

Commodore Webb. The OSD war reserve HARPOON missile objective for this five year plan is to accumulate sufficient assets by the [deleted]. On 1 February 1985 air HARPOON assets provide [deleted] of the number required to meet the OSD goal. Surface HARPOON assets provide [deleted] and subsurface HARPOON [deleted] of the number required.

Senator Exon. How many live HARPOON firings under realistic fleet conditions are conducted each year?

Admiral Brown. A maximum of 20 firings per year (10 firings per fleet) are conducted for follow-on test and evaluation (FOT&E) purposes. They also provide essential data for tactical development and evaluation. All HARPOON FOT&E expenditures are conducted in the most realistic scenarios possible to maximize training. Most are expended in battlegroup-size exercises.

HARPOON TRAINING

Senator Exon. Is adequate training being conducted so that fleet personnel are thoroughly familiar with the tactical employment of all variants and blocks of HARPOON? Is this training available to the Air Force B-52 personnel also capable of using HARPOON and is it being utilized by these personnel?

Admiral Brown. Training in the tactical employment of surface launched HARPOON is being conducted in both areas of single ship and battle group employment. This training is available at the Division Officer, Department Head and Commanding Officer level by Surface Warfare Officers School Command. Submarine officers receive training through curriculum modules inserted in the Submarine Officers Basic Course (Pre-submarine assignment), Submarine Officers Advanced Course (Pre-department head), and Prospective Commanding Officer/Prospective Executive Officer Courses. In addition to this pipeline training, a submarine crew receives formal employment training in both the classroom and attack centers prior to annual HARPOON certifications or scheduled forward deployments. Air-Launched Harpoon tactical employment training is conducted in Fleet Replacement Squadrons (FRS), fleet squadrons and at the Naval Strike Warfare Center. Training in battle group employment of all variants in a coordinated tactical environment is being conducted at the Tactical Training Groups for the warfare commanders, warfare coordinators and their respective staffs.

Navy Harpoon tactical employment training is available to the Air Force at the Medium Attack Weapons School, the Naval Strike Warfare Center and Tactical Training Groups. It is being utilized on a selective basis.

Senator Cohen. Thank you very much.

Admiral Brown. Thank you, Mr. Chairman.

Senator Cohen. The subcommittee stands adjourned.

[Whereupon, at 11:10 a.m., the subcommittee was adjourned.]

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